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THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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PART I. ORIGINAL COMMUNICATIONS.

ART. I.—*On Neurotic Albuminuria and Hæmaturia; more especially in relation to Thermic Neuroses and to Taking Cold.* By THOMAS LAYCOCK, M.D., &c.; Physician-in-Ordinary to the Queen for Scotland; and Professor of Medicine and the Practice of Physic in the University of Edinburgh.

FOR several years past I have attempted to show what an important part morbid conditions of the nervous system play in both functional and structural diseases of organs and tissues, and, more especially, that most fundamental element of the nervous system of all its divisions, the trophic. And by the term trophic, I do not mean the vaso-motor system only, but use it in a wider meaning to indicate that larger system, which including the vaso-motor as a higher and special evolution of it, presides over the primary, vegetative, or organic processes of nutrition, so as to modify the chemical conditions of the blood corpuscles, lymph, and tissues in general, as well as the contraction of the blood-vessels and the distribution of the blood. And in these processes must be included not only all that happens chemically in plants, and in the tissues themselves, but also results such as the production of heat, of the *vis insita* of muscles, and of the various kinds of *vis nervosa*, all which depend upon bio-chemical processes that are regulated by the nervous system. Of all these the production of heat is the most fundamental

and essential, because without a due temperature vital processes cease, of whatever kind they be. Hence the universal influence of heat and cold in the causation of disease and in cure.

Amidst the various theories current, which are either humoral, anatomical, or mechanical, this neurotic element in causation is by some pathologists wholly omitted, or, if admitted by others, is imperfectly observed and understood. In renal diseases there is hardly any recognition of the influence of the nervous system in causation, although there is hardly a case in which that is not manifested. My friend, Dr. Warburton Begbie, has recently detailed instructive instances of neurotic albuminuria in connexion with the symptoms of Graves' disease,* and I propose in this paper to show the connexion of the thermal portion of the trophic nervous system with transient albuminuria and hæmaturia, and in special reference to "taking cold."

It is one of the most instructive facts in the history of medicine that, while what is termed "taking cold" is so universally recognized as the most common of the general causes of disease, yet, from the neglect of trophic pathology, the theories of the process are so unsatisfactory that they have no systematic applications to practice. An illustration of this statement is afforded by the discussion at a meeting of the Clinical Society of London, when Dr. Geo. Johnson, well known for his valuable researches into the pathology and pathological anatomy of renal diseases, related to the Society cases in which temporary albuminuria had followed upon cold bathing. I shall shortly subjoin a note of these cases as illustrative of my subject, after having shown, by details of cases, the clinical relations of the condition known as rigors to both albuminuria and hæmaturia. I think the facts will prove that, in the process known as "taking cold," there is always a change induced in the trophic nervous system, both locally and generally, such, that one or other of a numerous group of trophic changes result in organs and tissues, and that this morbid and morbific change is one of the primary and most essential conditions of the process.

The first case of transient neurotic albuminuria with rigors occurred in a man who had been exposed to great atmospheric heat, and at the same time to malaria—a poison which, whatever may be its nature, induces a great variety of neuroses. In especial, those who have thus suffered in tropical climates not unfrequently have

such a change in the nerve-centres induced, that very slight exciting causes will induce a fit of rigors for years after they have returned home.

CASE I.—Recurrent Chills and Ague-fits in a Man with Enlarged Spleen and a Syphilitic Bubo—Transient Albuminuria after a paroxysm—Neither that nor the Ague recurred during an attack of Variola.

J. M., aged twenty-four, a joiner, of dark and sallow complexion and icteric tint, and of irregular habits of life, was admitted, on November 18th, 1873, into ward 3 of the Edinburgh Infirmary, under my care. I am indebted to one of my clinical clerks, Mr. McDiarmid, for a careful record of the case. J. M. had recently contracted syphilis, and had an ulcerating bubo in the right groin. He had had a blister applied over the region of the spleen, which organ was enlarged; a patch of dark pigmentation, corresponding to the shape and size of the blister, was observed in that region. He had also pleuritic friction on that side. When admitted he complained of pain on the left side, occasional attacks of ague, and general weakness. He stated that while out in Arkansas, about the end of last July, he had an attack of ague one very hot day, which was evidently ushered in by a slight sunstroke while on the top of a frame house. For at first he suddenly became giddy, and had a peculiar sensation in his head "as if the blood was all flowing to his ears," and everything seemed dim, and he could not hear for several minutes.

The paroxysm assumed a quotidian type, recurring about twelve o'clock daily for nearly two months. These commenced with a rigor, which lasted for half an hour, followed by the hot stage of two hours' duration, and terminating by profuse sweating. During his voyage home and since his arrival, he had had attacks of ague and chills at longer or shorter intervals. One of these occurred shortly after his admission. On 28th November, he felt much depressed and feverish, and had diarrhoea with much pain. Temp. 97·8°; pulse 72; resp. 18; urine scanty (15 oz.), of a dark, reddish colour, sp. gr. 1026. On November 29, he sweat very much. Temp., at 1 p.m., 100·0°; pulse 84; resp. 24. At 8 p.m. temp. 101·6°; pulse 96; resp. 30. On the evening of the 30th November, at 7 o'clock (having had for three days previously more or less diarrhoea and profuse sweat), he complained of being very cold, saying the "chills" were coming on, and desired to be covered up

with blankets. There was not, however, any distinct rigor. His temperature in the axilla at this time was 103·6°. This state lasted nearly an hour, and the hot stage set in with a temperature of 104·2°, pulse 132, which terminated in about two hours by profuse sweating. Quinine was given to him, and there was no recurrence of the paroxysm ; but, on the day after the chill, albumen was found in the urine to one-sixth, with a temperature of 100·6°, and pulse 108. On December 3rd, he had bilious vomiting and loose bloody stools, the albumen in the urine being still very considerable, with much mucus, but the temperature fell to 97·6° and pulse to 72. The next day the albumen was much less and phosphates were more abundant; and, finally, on the following day no albumen could be found.

Shortly after this the patient had a smart attack of varioloid, with pyrexia, but there were neither ague-fits nor albuminuria, and no eruption over the pigmented surface.

Here, then, is a case of temporary albuminuria coinciding with that condition as to the feeling of cold and to the physical effects of a lower temperature, which is experienced when the temperature of the skin is actually lowered, although in this case the temperature was really raised. It is reasonable to conclude, therefore, that it was not in this case a lower temperature of the surface which was the cause of that condition of the urinary organs upon which the albuminuria depended, *but some more general condition upon which both that condition, the higher temperature of the skin, and the phenomena termed rigors or chill, depend.* That more general condition can be shown, I think, by an analysis of the phenomena of rigors which I will shortly make, to be a neurosis of certain nerve-centres, which have the function of regulating the temperature of the body, and maintaining it at its specific heat.

As to Hæmaturia with Albuminuria.—In the discussion referred to below, Dr. Hermann Weber mentioned a case of hæmaturia induced by cold. As there is much in common in certain cases between this disorder and albuminuria, I will detail a case of what I shall designate thermic and neurotic hæmaturia, which came under my observation, and which will further elucidate the relations of the thermal nerve-centres to the urinary organs.

CASE II.—*Paroxysmal Thermic Neuralgia with Hyperaesthesia and Thermic Palsy; Hemispinal Sensory Neurosis; Albuminuria, Hæmatinuria or Hæmaturia, with Purpuric Spots and Lividity.*

A physician, aged fifty-six, practising in London, well known for his literary and professional attainments, did me the honour to consult me, in August, 1871, for an obstinate hæmaturia, recurring paroxysmally under various conditions, but chiefly when labouring mentally, or when the atmospheric temperature was low. It seemed doubtful from his statements whether it was hæmaturia or hæmatinuria; but he had a paroxysm while under my observation, and I saw that he certainly then passed almost pure blood. There was also great hyperaesthesia of the bladder, and a muco-purulent discharge, so that although in previous paroxysms bloody tube-casts left no doubt it was renal, it was not improbable that blood also came from the vesical mucous membrane or the prostatic ducts.

Much benefit had been got by full doses of quinine, and I suggested a change to arsenic; but, after hearing the facts, I concluded that it was a case of neurotic exhaustion, involving the thermal and other spinal centres; that all brain-work, anxiety, and the depressing effects of low temperature, would always induce paroxysms which would finally exhaust the patient; and that no cure was possible except by rest and relaxation in a warm climate. The patient, being necessarily reluctant to make so great a sacrifice, struggled on for two years longer, and then yielded to the inevitable. It is satisfactory to know that the change to a warmer climate has been beneficial. The case having been already published by Dr. Druitt,* I subjoin the following summary of it, as there given:—

The patient, of a dark and somewhat bilious complexion, stated that he had enjoyed very good health, save that he was occasionally subject to bilious sick head-aches in early life, and, later, to symptoms which threatened gout. In the summer of 1866, being then fifty-one years of age, he underwent great mental and bodily fatigue during the cholera epidemic.* In September of that year, whilst snatching a hasty holiday, he went, on a very wet day, to explore the ruins of Corfe Castle, and was walking or driving, in wet clothes for the greater part of the day. On coming home he changed clothes, took a warm bath, and seemed no worse; but he had a very restless night, was sick when

he got up early next morning to return to London, and was shivering, sick, and giddy during the whole journey. This was the beginning of the illness from which he subsequently suffered. On reaching home he was obliged to go to bed, on account of the feverishness and bilious vomiting, which lasted some days. On getting up, in an exceedingly weak and prostrate condition, he was suddenly seized with inflammation of a patch of veins, on the inner side of the right calf, ending in obliteration of the veins. This he hardly recovered from before the end of October, when it ceased, and has never returned; but the state of health which followed was extremely unsatisfactory.

The patient was incessantly told by his friends that he was of a singular dusky, earthy, colour, and the features "drawn." Although appetite and sleep were good, he felt languid, and under a cloud, but yet got through his ordinary work as usual. He was subject to numbness of the right foot, which was provoked by cold, but it would also come on if the foot were immersed in water a little too hot.

These results showed the influence of cutaneous temperature acting through the thermal nerves on the spinal cord, and the numbness showed that the sensory nerves and nerve-centres of the foot were involved. Subsequently he had also numbness of the left hand, but without coldness. These facts serve to show that, as to the seat of these sensations of numbness, it was spinal and unilateral—the decussating sensory nerves of the left hand being affected in the right hemicord. But as to the thermal centres, the affection was double, for certain morning paroxysms, shortly to be described, were accompanied with a cold, profuse, wet, sour, perspiration in the pelvis, while the body generally was dry. Where there was no paroxysm, the backs of the hands, and the exterior sides of the limbs, perspired; the palmar corresponding to one class of skin diseases, the dorsal to another class. Probably the volitional—*i.e.*, cerebral relations of the nerve centres to the muscular system of the hand, determined these differences.

During the summer of 1867 he first noticed, in the urine, a very small quantity of dark sediment, but did not investigate its nature. The urine, ever since the previous year, was exceedingly high-coloured and abounding in lithates. In June of this year the patient had ague-fits on two consecutive days, in addition to five others at distant periods. These came on at 1 a.m. in each day with intense rigors, blueness, and vomiting, followed by intense

feverishness. In short, they were paroxysms of thermal spasm and neuralgia, as I shall shortly show. These he attributed to Cambridge sewer miasm.

The first attack of haematuria followed upon a paroxysm of this kind in September following. Being in Switzerland, he went to Grindelwald, where, on a coldish morning, in the midst of a clinging mist, he visited the Glacier, and went into the grotto cut out in the solid ice. Here he got very chilly, and, on his return to the hotel, had a most severe attack of rigors, with blueness of the hands. This gave way to a good draught of wine, and was succeeded by no feverishness as on former occasions; but it ushered in the most prominent feature of the case, as follows. The shivering lasted till about one o'clock. Early in the afternoon the patient started to return to Berne, which was reached in the evening. The bladder was habitually capacious, and free from irritability, so that no urine was voided between leaving Grindelwald and reaching Berne—when, to the patient's horror, on going early to bed, he passed a very large quantity as black as porter, and evidently containing a large quantity of blood-stuff. The patient was so alarmed at this that he slept ill, and rose in the night to pass more water to see what it was like. This was absolutely pale and natural looking; the bloody admixture had passed off as suddenly as it came.

The patient soon returned to England, and, during the autumn, was excessively weak and languid, being obliged to give up a good deal of his work, and to take more notice of the phenomena of his own bad health. It soon became evident that at every mid-day the urine displayed signs of some periodic disturbance; either a small quantity of blood, or of kidney epithelium, or of red, white, or pink colouring matter would appear in the urine passed between 10 a.m. and 2 to 4 p.m., whilst that passed in the evening and at night always was of its natural appearance. Great fatigue, aching in the loins, numbness of the legs, sense of brain-fatigue, and an earthy yellow complexion, accompanied the state of the urine.

On one occasion the patient had purpuric spots on the face, caused by putting his head out of the drawing-room window to speak to a passer-by. He was conscious of a scarcely noticeable chill; but this soon passed off, and as the afternoon was bright and fresh he went out about 2 o'clock for a drive. During the drive it was noticed that his face became curiously spotted with blue, just

like patches of incipient gangrene. And the same day the quantity of blood-stuff in the urine was greater than ever.

He came back to town in March 1868 and got through the summer with more or less misery. In fine warm weather, pretty well; but in cold and damp or easterly winds, the diurnal loss of blood-colour by the urine, and the morning fits of coldness of the feet, tended to be greater than ever, though kept at bay by quinine, as will be shown presently.

September 1868 was spent in delicious sunshine at Swanage, where the patient had good sleep, good appetite, abundance of air and exercise, and no return of any evil symptom, except once. He felt perfectly well, and quite fit for his ordinary work; but on his way home he spent a night or two at friends' houses, the weather became damp and cold, and by the time he reached London he was as bad as when he left it.

The next winter, 1868-9, was passed very dismally with a combination of symptoms, which may be summed up once for all, to avoid repetition. The sleep and appetite were good; the patient awoke feeling refreshed and well, but about 9 or 10 o'clock there came on, with horrid punctuality, a feeling of langour and depression; pulse down to 50-56; hands and feet painfully cold, wet, blue, and cramped like those of a cholera patient; great lassitude and indisposition for work. In the middle of the day, after luncheon and wine, the symptoms passed off, but the urine secreted during these hours and passed about 2 or 3 p.m., was excessively bloody. Under favourable conditions the bloody appearance passed off in the evening, and the urine passed at night was clear and natural. Few things could exceed the patient's misery; the painful coldness of the feet hindered all mental work; he would sit with his study-door bolted, with his boots and stockings off and blacking his soles in stripes by putting them against the bars of the grate, in the vain attempt to warm them.

The paroxysms of fever were accompanied by intense drowsiness and jaundice, with profuse excretion of bile, prodigious discharge of lithates, and great debility. The temperature in these attacks rose to 103° ; what it was during the neuralgic paroxysms does not appear further than that, except during the fever fits, it was steadily at $98^{\circ}4$, both in mouth and axilla. But it is probable that these were due to thermo-motor palsy, and that the temperature was much reduced, since it is stated that the whole heat-producing power of the economy, as well as the power of resisting cold, were singularly

deficient. Precisely at 9.30 every morning (except in hot or very fine weather) the feet became cold and blue. This coldness was of the intense and most painful sort, such as used to be felt by travellers outside a coach in cold weather, causing acute suffering attended with cramps, blueness, and a miserable wetness of the palms and soles, precisely like those of cholera patients. Equally distressing was the fact that in any brisk wind, even if not very cold, the moderate abstraction of heat from the skin would paralyse the capillaries; some part—it might be the end of the nose or the cheek—would become first pale and benumbed, then red, then purplish, and at last quite black. This occurred sometimes with and sometimes without a most unpleasant tingling. The patient, if walking out on a cold morning, would get the face so blue as to have it noticed by people in the street and by persons at whose house he called. Of reaction against cold there was no sign. If the hands or feet, or the face, were chilled at any time, the use of cold water followed by the briskest friction was of no avail to bring on a healthy and comfortable glow. Exposure of the skin in the morning would bring on a fit of coldness and numbness of one leg, but these effects were generally absent in the summer when the thermometer was above 70°. The singular lividity of the skin of the face always disappeared quickly if the patient came into a warm atmosphere; but for that, as well as for the coldness and lividity of the hands and feet, mere friction was of no use. The act of walking or standing on a wetted board-floor of a railway station was enough, at almost any time, to take away all sensation in the legs, and was followed by bloody urine. The patient always noticed that he was pretty well during a full moist mild south west wind, and usually better when the barometer was low.

The state of the nervous system influenced the production of the paroxysm. Numbness of the right foot and left hand (without coldness) were early and severe symptoms, although they ceased to be troublesome after a year or two. But mental worry and want of sleep, were the most efficient agents in bringing on discharge of blood with the urine. During the month that the patient spent at the sea-side, in 1865, the only return of his symptoms was on a day which he was obliged to devote to writing letters on a subject that caused a great deal of anxiety. If he were sitting, during the forenoon, warm and comfortable by the fire, and then moved to the table to begin anything like mental work, the feet became cold directly. Such an incident as being

cross-examined in a court of justice would bring on cold and numbness of the feet, followed by bloody urine. On the other hand, sleep was a supreme remedy. When going off into a comfortable nap, which the patient could do at will, a grateful warmth of the extremities succeeded painful coldness, and at no time did the hæmaturia occur while he was in bed, except on one occasion, when he was unable to sleep from anxiety.

The urine varied under varying circumstances ; was most commonly acid; sp. gr. from 1026, more than once of 1022, now and then as low as 1014. During the paroxysm there were blood, bloody tube-casts, altered blood corpuscles, and colouring matter of blood; was intensely albuminous, or had only a trace, or was altogether free, according to the stage of the paroxysm; sometimes renal epithelium; no sugar; urea deficient; uric acid for the most part normal.

I shall now give the details of a case of what would have been named hysterical rigors by some, if the phenomena had occurred in a woman, but which indicate a functional disorder of the cerebro-spinal nerve centres, premonitory of insanity, and due in part to alcoholism. This case is not the less significant because the albuminuria was both transient and trifling in amount. I am indebted to my clinical resident, Dr. William Bourke, for a note of the details.

CASE III.—*Rigors and Transient Albuminuria in a Drunkard, with Hypochondriasis and Spinal Cephalic Neuroses.*

D. A., aged twenty-three, druggist's assistant, of dark complexion and with black hair, was admitted to the Royal Edinburgh Infirmary under my care, 23rd March, 1874, complaining of pain over the crown of the head, frontal head-ache, and feeling of numbness and tingling extending up the back of the neck to the occipital region.

Present ailment dates from the New Year (1874), about which time he was drinking hard, chiefly brandy. In consequence he had two attacks of *delirium tremens*, and since then has been complaining of severe coronal head-ache, as if a great weight was pressing on the vertex, with a feeling of giddiness and faintness at times. He also experienced a girding sensation around the head, as of a tight-fitting cap, with a feeling of numbness over the same region, extending down the back of the neck. Ever since he has also been getting very low-spirited and hypochondriacal, and

usually passes more or less restless nights. Two years ago, he lost the power of his left forearm and hand for a period of six weeks, after a drinking bout. He confesses to have lived a debauched life and to irregular habits, but denies sexual excess or syphilis.

After admission he not only complained of head-ache and all the other symptoms noted under history, but he had spectral illusions, and a feeling of tenderness localized to one spot on the vertex, a little to the left of the coronal suture, and which, when pressed upon, causes pain at the back of the throat. This spot is about the size of a shilling. He also complains of a feeling of numbness and pricking in the ring and little finger of the right hand, extending a short way up the forearm. The various sensibilities—to touch, pain, temperature, &c., are unaffected. Motor power both voluntary and reflex are normal; sleeps badly; head-ache, &c., often worse at night, and prevents sleep. Pupils are large, but contract well to the stimulus of light; the eyes are myopic with hyperæmia of optic discs; other special senses normal. He is generally morose, low-spirited, and desponding, and seldom associates much with the other patients.

On April 19th, between twelve and one o'clock, he was seized with severe rigors, followed by hot and sweating stages. Felt sick during the cold stage and inclined to vomit, and complained of severe pains in the back, and frontal and coronal head-aches. He also felt great oppression on the vertex and against the eyeballs, as if forcing them inwards. The pains in the small of the back were unusually severe, and extended up to between the shoulder blades. During the hot stage, the pain increased, and he began to pass a considerable quantity of somewhat pale-coloured urine in the sweating stage. The cold stage lasted for about a quarter of an hour or twenty minutes, during which, although the patient felt cold, the thermometer stood at 102°. The hot stage lasted about half an hour or more, and the temperature was 104·2°. He felt hotter about the head and neck than elsewhere, and sweated most, he thinks, in these regions. Thermometer registered 101·2° in the sweating stage. Urine passed contained a trace of albumen, sp. gr. 1020; phosphates abundant, with epithelium, mucous cloud, &c. Bowels were confined; aperient ordered. Up to date of writing there was one recurrence of the fit.

The chief points of resemblance and difference in the three classes of cases detailed are very obvious. With differences as to the state of the kidneys, the cardinal points of resemblance are the

thermic phenomena known as rigors. To understand the pathology of rigors it is necessary to compare them with the results of cold; to definitely locate them; and to ascertain, if possible, the anatomical relations of the nervous system to the heating and cooling of the tissues locally, and of the organism in general. First, then, as to the physiology, as indicated by "taking cold." To indicate the relations of taking cold to albuminuria, I shall take an abstract of the cases communicated by Dr. Geo. Johnson to the Clinical Society of London already referred to, as given in the *British Med. Journal*, Vol. II. for 1873:—

"The first case was that of a medical student, aged twenty-two, who, about seven o'clock on the 18th June, after bathing for a quarter of an hour in the Marylebone bath, had a sense of fatigue and head-ache. Four hours after the bath the urine was tested and found albuminous. In the evening there was still a trace of albumen. The next day the urine was normal, and continued so until June 25th, when he again bathed. The bath was again followed by a head-ache, and in the course of the day the urine was found albuminous. From that date until July 17th every specimen of urine passed was tested, and albumen was present at some period of the day on all but five days. Since July 17th the urine has remained normal. The subject of these observations is in good health, and has never been seriously ill. The second case was that of a medical student, aged twenty-five, who one day in July bathed in the Lambeth bath for an hour. He felt no inconvenience. The urine passed an hour after the bath contained a sixth of albumen. The urine was not tested for three or four days, when it was found normal. The experiment has not been repeated. The third case was that of a medical student, aged twenty-three, who on three occasions found his urine normal before bathing in the sea in August and September; and on each occasion, after remaining in the water from a quarter to half an hour, found a moderate quantity of albumen in the urine. In a few hours this had disappeared. He felt no inconvenience from bathing. Four other students, after bathing from half an hour to an hour, and on one occasion for an hour and a half, found no albumen in the urine. The fourth case, a boy, aged sixteen, looking pale and feeling languid, was found to have albumen in the urine to the extent of one-eighth on June 25th. It was of pale colour and contained no casts. On September 23rd, when next seen, only a trace of albumen remained. On October 23rd the urine was quite normal. Until within a few days

of the time when the albuminuria was first discovered, he had been bathing almost daily in the sea, from half to three quarters of an hour at a time. He had felt fatigued and chilled, and on one occasion had vomited on coming out of the water. The only previous illness had been diphtheria, ten years before. The transient albuminuria was believed to have been caused by the repeated and prolonged immersion in cold water; and it was suggested that as acute Bright's disease is not unfrequently excited by exposure to cold and wet, there was danger lest the frequent recurrence of temporary albuminuria, the result of prolonged cold bathing, and the consequent repression of the cutaneous secretion, might lead to permanent mischief and the structural degeneration of the kidney."

So far as to albuminuria. In the discussion which followed, Dr. Hermann Weber related a case of haematuria from cold as follows:—

Coming lately to Grindelwald, Dr. H. Weber found a gentleman in bed with haematuria, of whom it was stated that, a few days previously, when greatly fatigued, he had fallen into a river, whence he had not walked, but had been carried home. He had sat for some time in his damp clothes, dined, and had then gone to bed. Three weeks afterwards the gentleman came to London. His urine was no longer bloody, although albuminous; the specific gravity was normal, and it contained nearly transparent casts of the tubes. The albumen remained for five or six weeks. Six months afterwards the gentleman was quite well. Probably, therefore, before the accident he had no albuminuria, otherwise it would not have disappeared so readily. Of four other cases under Dr. Weber's care, in whom albuminuria has ensued upon exposure to wet and cold, one was fatal; in one the albuminuria remained permanent; the two others recovered. Probably the two former had previous disease of the kidney, whilst the two latter had none.*

Various opinions were expressed as to the order of causation in these cases. Dr. Greenhow thought that the symptoms were traceable to some defect of the nervous system. Dr. George Johnson, being a humoral pathologist, thought the albuminuria was probably due to the repression of the cutaneous secretion, and fortified his opinion by quoting experiments on rabbits, which had albuminuria after having had their skin deprived of hair and then varnished. These experiments hardly help, however, to an explanation, because it is by no means clear that rabbits and men are alike as to their cutaneous structures and functions, and because it

* British Medical Journal, Vol. ii., 1873, p. 664.

is doubted whether the shaving and varnishing of these rabbits is at all analogous to human bathing. A well-written article in the *British Medical Journal* for December 20th, 1873, discusses the question of causation from a mechanical point of view. The writer maintains a hydrostatical theory, and argues that "a continuous application of cold to the surface of the skin must obviously have the effect of increasing the blood-pressure in internal organs; and this increased pressure on the walls of the Malpighian capillaries may determine a serous transudation through their walls." But he modifies his theory humorally for chronic cases of albuminuria. It is probable, he thinks, that the albuminuria which follows directly upon a prolonged cold bath, and passes away in a few hours, is due to this purely mechanical or hydrostatical cause; but when (as in one of Dr. Johnson's cases) the albuminuria continues for three weeks, and in another for three months, it seems more likely that the repression of the cutaneous secretion is the proximate cause of the albuminuria. The appearance of albumen in the urine of a rabbit whose skin has been covered by an impermeable varnish seemed to him a strictly analogous phenomenon. These views offer the most recent and best solution of the problems involved. Something in the argument may be admitted. For example, there can be little doubt that whatever may be the exciting causes in cases of this kind, there are local predisposing conditions affecting the kidneys in one or other of their structures. One of these may be the state of the nervous system locally; another of the blood-vessels; a third of the secretory structures. But the appearance of albumen in the urine of a shaven rabbit, when its skin has been covered by an impermeable varnish, cannot be admitted to be strictly analogous to that following on the use of a cold bath. Further, the occurrence of albuminuria at a temperature of 103·6°, as in Case I., negatives the repression theory of cold.

A brief examination of the phenomena resulting from too low temperature of the surface will suffice to show that we must widen greatly our sphere of inquiry. Two results follow accordingly as the withdrawal of heat acts locally or generally. If locally, there may be simply numbness and aching of the part, with dingy redness or blueness; or there may be death-like pallor, ending in chilblain, frost-bite, or death of the part. If the results be general, then the phenomena vary much according to the extent to which the temperature is lowered generally, and to the heat-producing power. Under ordinary circumstances, a person whose general

temperature is lowered sufficiently, as in a cold bath, or otherwise turns pale or even livid, the muscles of his jaws and limbs are thrown into short contractions so that his teeth chatter, and he shivers and shakes. At the same time certain muscular structures of the skin, of the hair-bulbs, and perhaps of the sweat-glands, contract, so that his skin gets rough as well as pale, and having been likened to the skin of a plucked goose, is termed the "goose-skin." But it is to be noted that the same kind of contraction occurs when a feeling of pain is experienced, and hence it is also termed horripilation (the Greek word *ψύστω*, whence rigors, means to be horrified as well as chilled.) That the muscles of the hair-structures are chiefly involved in this phenomenon is probable, because in lower animals fear and anger cause the hairs and their analogues, as quills, feathers, and crests, to be erected; so that there are contractions of this kind—1, from lower temperature; 2, in the paroxysm of an ague; 3, in fevers; 4, in suppurative inflammations; 5, in various neuroses; and, 6, in emotions. Hence, for a common source of origin of rigors we must look to some condition of the nervous system. And so with the heat and the sweats. As a clinical fact, the whole phenomena of a fit of ague are sometimes limited to a limb or to half the body. These can only be explained in like manner. That both heat and sweats and redness are neurotic in various other conditions is equally capable of proof. Examining the phenomena as they are connected in febrile rigors with the *feeling* of cold, and yet with higher temperature of the skin, it is worthy of special notice that the fact has been known for above a century. It was clearly stated by De Haen, a clinical professor at Vienna in his *Ratio Medendi* of date 1759–65. De Haen was a most accurate thermometric observer, but for nearly a century his valuable facts and observations of this kind have been lost to science and art, simply by that neglect which is so commonly the lot of too-advanced men. He particularly noted that in the case of a quotidian intermittent the patient complained most loudly of cold during the so-called cold stage, although the thermometer was everywhere at 104°, while the complaints of cold diminished as the thermometer fell to 100°, 99°, and 98°. The pulse during the cold stage was, as is usual, quick, small, and contracted. De Haen tested and objected to a mechanical theory then current, and since revived, I think, by Virchow, that the heat of fevers is due to the increased friction of the blood in the blood-vessels, and he used this case for that purpose; but at

the same time he seems to have been of opinion that the man was really cold internally, although not externally, which, indeed, may have been the case; and he says that his fever was not of that kind termed a *leipuria*, in which the patient is cold externally, yet thirsty and burning internally, and which is said to be fatal—such a condition, in fact, as we have in choleraic collapse.*

We can take advantage of modern psychological science to explain some of these conditions. The patient in a rigor, even when wrapped up, *feels* cold on the surface of the body, although he is hotter than natural, because his nerve-centres are in the same condition, morbidly, as if the temperature on the surface had been lowered. Hence we can conclude not only that the illusive feeling is a thermal or thermic neuralgia (for the painful sensations due to temperature can only be manifested as painful sensory neuroses in this way); but that lowering the temperature of the body, as by cold, induces such a centric neurosis, known normally as the pain of cold, and which neurosis causes not only the feeling of cold, but also the convulsive tremors of the jaws and limbs, the contraction of the muscles of the hair-bulbs, and the contraction of the vessels causing pallor. But if the lowering of temperature be not too long continued or too extreme, there is, as a result, increased heat production, so that thermogeny results as a reflex conservative act.

If now we differentiate the thermal nervous system, we can subdivide it into what are the analogues of the sensory and motor systems. The sensory will be the seat of neuralgia, as pains of heat and cold (*ardor* and *algor*); of hyperæsthesia, or neuralgic sensibility to changes in temperature; and of anæsthesia or loss of thermic

* Since writing the above I have had my attention called to a paper written by a Dr. Allvey, of date 1801, for a provincial medical society in England, on the employment of cold in typhus, and published in *The Practitioner* for April. The author precedes his observations "on the relative powers of heat and cold upon the sensations of the human body" by a few statements as to what cold is and what it causes. The gist of his paper is that the sensation of the patient is a good guide, in the use of cold therapeutically, as well as the thermometer. Thus, when cold sponging is to be used, "the heat of the surface must be steadily above what is natural, not the smallest sensation of chilliness or tendency to perspiration being present." And again:—In a "fever in many respects similar to the synochus of Cullen, in which the senses of hearing, taste, and feeling are throughout the disease uniformly acute, and the heat of the surface frequently up to 108°, with great restlessness, delirium, and incessant talking, the patient invariably shrinks from and is hurt by cold." As a practical fact, he affirms that in fevers of that kind the practice of employing cold therapeutically "in any form so as to prove inconvenient to the patient, has been found baneful, and ought to be abstained from altogether."

sensibility. Hyperæsthesia and a consecutive neuralgia characterized Case II. In addition to these thermic phenomena, there are the muscular aches and contractions which follow upon extreme cold. Rigors, from this point of view, constitute a central *thermic* or *thermal* neuralgia and spasm.^a As to the thermic motor system the excessive production of heat corresponds to motor spasms, and the abolished production and regulative power to motor palsy, as I could show more clearly if space allowed.

This view enables us to apply the facts of experience as to neuralgia in general to the elucidation of these thermic neuroses and their results. Thus, for example—first, just as in ordinary neuralgia there is the exalted sensibility to impressions termed hyperæsthesia, so in rigors, in the first stage of fevers, and in various local and general thermic neuroses there is exalted sensibility to cold, or an intolerance of heat, or of a higher temperature. And there may be this state of feeling with vascular spasm, quite irrespective of the temperature of the part affected, just as occurs in rigors. So that to conclude, because there is pallor, and the patient says he feels cold, that there is a state of coldness, is an error in method.

Even so experienced and accurate an observer as Dr. Brown-Séquard has, I think, omitted that precaution in discussing the pathology of a case of thermic hyperæsthesia and neuralgia.^b Contraction of the blood-vessels is not necessarily a cause of coldness, although as a reflex act it is a cause of cooling. In rigors and in other thermic neuroses there may be undue heat without the feeling of hotness, and contraction of the vessels to obviate the undue heat with the feeling of coldness. In Case II. there were both the feeling of coldness and a real lowering of temperature from thermic palsy, as indicated by the lividity of the surface.

Carefully observed facts, in short, dispose of the theory so generally held, as if it were an established fact, that abnormal coldness is due to, and therefore always follows on, vaso-motor spasm; and that abnormal heat is induced by vaso-motor palsy—in each case it being

^a There is some doubt as to the proper uses of these terms, but it appears to me that the word "thermal" should be restricted to indicate those morbid conditions which directly depend upon too high or too cold a temperature, or are due to heat and cold as immediate causes; while the word "thermic" should be used to denote the kind of affection which results from morbid conditions of the thermic nervous system, as the regulator of temperature.

^b Case of persistent reflex-contraction of the blood-vessels. Arch. of Scien. and Pract. Med., Vol. I. 1874.

assumed that the blood is the exclusive source of heat, and not the tissues, coincidentally, at least, with the blood. And this theory is a common source of fallacy, both in observation and treatment, for, since it is not the fact, as is proved by the phenomena of severe rigors, that there is necessarily diminished temperature with diminished circulation and pallor of the surface, so neither is there necessarily increased heat with increased blood supply and congestion. So that redness or flushing by no means necessarily implies, as is commonly thought, an increase of temperature. There must be various other conditions, for the laws of vital heat are complex. The state as to vital energy of the tissues themselves, their condition as to innervation, the state of nutrition of the blood and of the lymph, and the contractility of the lymphatics, as well as of the capillaries and arterioles, and of their condition as to innervation, are all factors in the causation of heat, and of these morbid local changes, of whatever kind, which depend upon states of nutrition and of temperature of parts. This is particularly the fact as to these tissue-changes known as inflammation and inflammatory, and congestive effusions and exudations; and which, even as to the lymph and the lymphatics, vary greatly under the terms "scrofulous, rheumatic, gouty, syphilitic." But whatever the kind of change may be a certain specific temperature is necessary for vital activity, and any wide departure from this, either in excess or in defect, leads to various morbid changes and to death.

The relations of the blood-corpuscles to heat-production turn upon their being the vehicles and source of, oxygen, the chief element of combustion in combination with certain chemical compounds to which the colour of the blood is due, and of which carbon and iron are essential constituents. Now, a lower temperature of the tissues will diminish the vital energy of the corpuscles and capillaries, and hence, probably, the lividity of the surface when too cold. In Case II., since this too cold state, due to thermic palsy, was the probable cause of the extreme blueness observed, it is also probable that a like condition extended to the kidneys, causing hæmaturia. But a due consideration of this point would lead us into the pathology of purpura hæmorrhagica and purpuric fevers. All I would say now is, that there are certainly neurotic forms of purpura.

To understand the diastaltic action of the thermic nervous centres on the tissues, the blood-corpuscles, the capillaries and small vessels, and the sudoriparous glands, and the relation of these latter to the kidneys, it is necessary to apply the

laws of reflex action to heat-production. We can start from the fundamental fact that the body has to be maintained at a certain range of temperature by the conservative and regulative action of the nervous system; this range is the specific heat without which no natural activity can properly go on. Now, it is certain that this is maintained, not only in the body generally, but in particular portions and under varying thermal conditions of surrounding media, whether these tend to raise or to lower the temperature. If we inquire into the action of the regulative mechanism, we find that it varies according as the one or other contingency has to be met. If the surrounding medium abstract heat, then the incident excitor thermic nerves excite the regulating thermic centres, so that a conservative reflex influence is exercised on the cooled part, heat is produced therein, and the specific heat maintained. On the other hand, if the surrounding medium add to the heat of the body, a conservative reflex influence is equally exercised, so that due cooling results. The chief means to the latter end seems to be an increased efflux of blood to the sudoriparous glands, so that the surface of the body is covered with water, and cooling results from evaporation. This does not, however, exclude a mechanism for cutting off the supply of oxygen and carbon from the blood-corpuscles to the tissues proper by contraction of the blood-vessels. When the production of heat is needed, the conservative process may be held to be exactly analogous to reflex motor acts; we need only to substitute motor energy as heat for motor energy as muscular contraction. There is no question here as to the contraction of the vessels, which is also a physical process, for we know that the abstraction of heat locally causes vascular contraction and pallor, while the addition of heat induces dilatation, redness, and increased vascular activity. Such result would also follow on the neurotic and conservative production of heat in tissues; so that it may well be doubted whether the results of experimental injury to the ganglia of the sympathetic system, or of lesion of the spinal cord are shown—first, in the dilatation of the vessels, and then in the production of heat. On the contrary, it is heat-production first, and then dilatation and vascular activity. Probably the same order of events occurs in muscular activity. The heat produced excites the activity of the circulation in the muscular tissue, but that is a result of the action of the *vis nervosa* on the muscular mechanism.

Carrying this analogy further it can also explain, in some degree, why in certain morbid states of the thermic nerve-centres there is

increased heat in the corresponding tissues; for just as violent muscular contractility, in the form of convulsions and spasms, results from certain morbid conditions of the musculo-motor system, so, also, in the thermic system. From this point of view all the phenomena of rigors, including heat-production, are spasmotic; inasmuch as there is not only spasmotic contraction of the vessels, but the hyperpyrexia is equivalent to spasm, too, as the analogue of convulsions. We may also extend the analogy to the *post-mortem* production of heat in certain diseases, as tetanus, yellow fever, and cholera; for in these in like manner, there are often also *post-mortem* contractions not only of muscles, but of groups of muscles. And, lastly, just as there is a so-called "*vis insita*" in contractile tissues, so, also, in the tissues of plants and those of animals devoid of nerves and blood-vessels, there is a "*calor insita*" independently of blood and nerves. It follows, as a necessary conclusion from all this, that thermic changes will occur, both generally and locally, from diastaltic and reflex action of the thermic nerve-centres, together with the coincidents of redness, pallor, and sweats. In illustration of this principle I refer to one of my published lectures,* from which I subjoin an extract:—

"Numerous facts prove decussation of the thermal nerves. If one hand be made cold by being placed in iced cold water, the other becomes cold also; and this is not due to a general lowering of temperature, because that of the axilla and tongue remains unchanged. Cooling the hands or feet is an effectual method of causing a paretic urinary bladder to contract. Hemi-section of the medulla oblongata, or of the spinal cord on a level with the first cervical vertebra, is followed by increased heat on the same side of the head, hand, foot, wrist, and ankle, and on the opposite side of the trunk, thigh, arm, leg, and upper part of the forearm. Hence the conclusion that the thermic nerves of the abdominal parietes decussate either as soon as they enter, or when they leave the spinal cord. On hemi-section in the mid-cervical region, Schiff found the hand and lower part of the arm to be hotter on the same side as the section, but the shoulder and the rest of the limb to be hotter on the opposite side. Also the foot and ankle were found hotter on the same side, but the trunk, thigh, and leg hotter on the opposite side. These results of experiment appear to me very worthy of notice, because they explain various anomalies which I have

* On the Trophic Clinical Anatomy of the Cerebellum and Medulla Oblongata. Medical Times and Gazette, July 22nd, 1871.

observed clinically. A diagonal or circumscribed area of cutaneous inflammation may sometimes be seen in skin diseases similar to these spheres of heat-production. The law is also specially manifested in cases of diagonal dropsies and in wasting palsies, in which the same crossed morbid action is seen. In all these cases the centric disorder may be unilateral, although the results are shown in the upper portion of the limb, say on one side, and the lower portion in the other; for lesion in one half of the cord may affect the direct fibrils on that side, and the decussating fibrils entering in from the opposite side. It is probable that the decussations of the sensory nerves of the hands and feet are high up within the cranium, and not in the cord, as is the case with those of the upper arms and thighs, for, the former being tactile, executive instruments, they must have both their special motor and sensory centres within the encephalon. It is for this reason that numbness, as well as motor palsy, beginning in both hands or in both feet, is a sign of intra-cranial centric disease. In like manner, symmetrical gout of the hands and symmetrical affections of the skin, like purpura and psoriasis palmaris, are associated with trophic nervous debility of centric origin. The hot palms in fever and in various neuroses, belong also to this class of symptoms. It is for this reason that the first return of moisture on the palms in cases of fever is so welcome. It indicates returning regulative action of the nerve-centres.

"Knowing these general principles of trophic clinical anatomy, we can be more practical in our researches, and more readily apply experimental facts. Claude Bernard found hemi-section of the spinal cord in the dorsal region to be followed by increased heat of the lower extremity of the same side, and diminished heat of that of the opposite side; so that a diseased kidney acting injuriously on the spinal cord on its own side (which it will do), might lower the temperature in the opposite side by acting on the decussating thermie-motor or executive fibrils going to that side, and at the same time cause an illusive sensation of heat there by acting on the sensory afferent fibrils. Sweats and rigors may also thus be induced. Irritation of the urethra will excite dangerous, because general, rigors; but then, like the cervix uteri, it is a unified organ, in virtue of the double decussation of its sensory fibrils, so that urethral irritation cannot be unilateral; nevertheless, creeping local chills and goose-skin do occur from localized centric or diastaltic action, such as those felt about the loins at the beginning of a 'cold' or of a fever.

"There are numerous morbid conditions which are plainly due to

this diastaltic action of diseased viscera. Thus, in unilateral pneumonia, and in tubercular phthisis chiefly affecting one lung, there is often a hot flush over the cheek of the same side. Sometimes one ear is hotter than the other in head affections, just as there is more venous congestion on one temple than on the other."

It is now possible to discuss humoral theories of repression from an intelligible point of view. When the surface of the body is chilled, what is or can be "repressed" or thrown back upon the kidneys? Obviously it must be something that the skin excretes in common with the kidneys. Now, the kidneys, besides the mineral constituents of urine, excrete water, azotized carbon as urea and uric acid and its salts, and oxidized carbons constituting the various urinary pigments. The former and latter are skin excreta, but their relations are more complex than appears at first sight.

The regulative mechanism which the thermic nerve-centres constitute is chiefly occupied with the production of heat, because for the most part the surrounding media are at a lower temperature than the specific heat of the body. But there are conditions of climate, and of disease, and work, such as occur in great muscular activity and in fevers, in which the cooling of the body is the object aimed at. And this is chiefly attained by the method of evaporation, to which end the sudoriparous glands, as I have shown, are excited to pour out a watery fluid profusely as sweats. The relations of these glands to the kidneys are not exclusively, therefore, specific as to certain excreta, as the humoral pathologists affirm in their theories of repression, but include the amount of water to be excreted by the skin and the kidneys correlatively. Further, in regard to the excreta themselves, it must be remembered—1. That water may itself be an excretion, for the quantity in the blood is, like the heat of the body, a specific quantity, and if it be in excess must be excreted by either one organ or another. That this regulative function as to water is fulfilled by the kidneys is well established, and recent researches point to the Malpighian corpuscles as the excretory organs. If, then, it is water that is repressed, these structures will be affected. 2. The carbonaceous products which the kidneys excrete largely being the products of thermogeny, will be in relation to the heat produced. That this is so clinically is shown by the deep colour of the urine in acute rheumatism and other pyrexial diseases, and is well illustrated by the lithates and bilious vomiting in the pyrexial paroxysms of Case II. But, 3, it is questionable whether the relations of the skin to the kidneys extend beyond these carbonaceous products;

carbon pigment is excreted of various colours by the skin—blue, yellow, brown-black—but we rarely, if ever, find urea or uric acid. From this point of view we must take in both the liver and the lungs, in their relation to the kidneys, as excreting used-up carbon or oxidized carbon of varying composition.

The exhausting influence of a high atmospheric temperature upon both the skin and the kidneys may be more easily understood when we consider the relations of these organs to the need for water and for getting rid of superfluous carbon; but, more especially, as to the latter in inhabitants of temperate climes, when exposed to a high temperature, or when there is not habituation to extreme heat. That a high temperature influenced the origin of the thermic neuroses in Cases I. and II. is a leading fact in their histories; and that it had its influence on the bathers is not improbable. A continuously high temperature, from excessive muscular activity with profuse sweating, must have a like exhausting influence; and hence the readiness with which persons so situate "take cold," and suffer from pyrexial diseases.

Illustrations of these views as to the position of the nervous system in thermogeny might, indeed, be extended to almost any length in elucidation of the causes of disease.

ART. II.—*Contributions to the Surgery of the Head—Sebaceous Tumours.* By HENRY J. TYRRELL, F.R.C.S.I., &c., one of the Surgeons to the Mater Misericordiae Hospital.

SEBACEOUS cysts are the most common tumours of the cranial region. On the hairy scalp they often exist in great numbers, and are known as wens. In other situations, particularly over the external angular process of the os frontis, sebaceous cysts are also occasionally seen, but they differ materially in their position, and also in their treatment, from the ordinary subcutaneous sebaceous growths.

Sebaceous cysts belong to the class of cutaneous proliferous cysts of Paget—i.e., of cysts within which in the typical examples a tissue grows, having more or less the structure and the productive properties of the skin. It is uncommon to find typical examples of such cysts, and, as a general rule, they contain only epidermal and sebaceous materials. In those cysts which grow about the brow and orbit, Lebert has detected all the minute structures of the skin.

The cysts situated near the brow are, I believe, congenital, or, at least, appear very soon after birth. They generally do not grow large—from the size of a pea to the size of a bean. Occasionally, however, they attain much larger dimensions, and I have lately seen one in a man of thirty as large as a hen egg. It has existed as long as he can recollect. Formerly he was able to push it out of sight up under the orbit, but latterly it has grown so large that he cannot do so. It feels quite moveable, and as it does not give pain he is not willing to have it removed.

When such tumours are examined they feel quite moveable, solid, like marbles, and one is tempted at once to make an opening through the skin covering them, and to squeeze them out. Some years ago a child aged ten years was under my care for a cyst the size of a hazel-nut, situated at the upper and outer side of the orbit. I promised a speedy cure, and having made an incision over the cyst; I thought I had nothing to do but force it out entire. The cyst wall was remarkably thin; it burst, and I had to dissect deeply into the upper and outer wall of the orbit before I could remove the deep portion of it, which was attached to the periosteum. The wound was slow in healing, but ultimately got well. Since then I have been more guarded in my opinion.

I do not believe we should attempt to remove such a tumour entire, but, having cut down upon it, puncture it, squeeze out the contents, and, then, having seized the cyst wall with a serrated, broad-bladed forceps, leisurely, with the edge and handle of a scalpel, remove the entire of it.

When consulted about these tumours the surgeon should always advise their removal, but at the same time, he should state how serious the operation is, as attachments may have taken place of the cyst to the periosteum, or the bone may have been absorbed by pressure.

The following case is related by Mr. Prescott Hewett in an able article on sebaceous tumours of the cranial region:—"A few years back I was consulted about a tumour of the size of a large walnut, situated over the outer part of the right brow, and extending into the temporal region. This tumour, globular in shape, and of a softish consistence, was firmly attached by a large base. Careful examination showed that the ridge of the orbit was partially absorbed, and deeply; a bit of the tumour could be felt slightly

* Contribution to the Surgery of the Head, St. George's Hospital Reports, Vol. IV., 1869.

projecting into this cavity. The history was, that the tumour was first noticed at about the age of two years; it was then the size of a small marble, and quite moveable; it had remained stationary for some years, without any apparent inconvenience, but latterly it had taken to growing rapidly, and the patient, then aged twenty years, was suffering from severe head-aches. Mr. Caesar Hawkins, who saw the case in consultation with me, concurred in the opinion that the tumour was a sebaceous cyst, which ought to be removed at once. When the operation was performed the tumour was found to be firmly attached to the periosteum only in the temporal region, but over the orbit it dipped deep into the bone; the outer and upper part of the orbit was absorbed above this; the outer table and diplœ were gone, leaving merely a thin plate to defend the brain. Here the bone was quite scabrous, and the depression large enough, and deep enough, easily to lodge the top of the thumb. The tumour was removed whole; it proved to be a thin-walled cyst, filled with a thin white sebaceous matter, mixed with a kind of oily fluid; there was no hair in it. The case ultimately did well, but it was a long while before the wound was filled up. I lately heard of this lady, and she has been quite well ever since the operation.

"In this case the evils which may arise from one of the sebaceous tumours so commonly observed about the outer part of the brow of young children are clearly marked. At first this tumour was perfectly moveable, but left to take its own course, it became attached to the bone, which it gradually absorbed, and had it been allowed to remain where it was much longer, there is no doubt that the skull itself would have been perforated."

Sometimes these cysts are deeply situated under the orbital portion of the orbicularis muscle, in the substance of the temporal muscle, and, according to Hewett, Mr. Busk removed one the size of the bowl of a common spoon from under the temporal muscle.

It cannot be too forcibly, or too frequently, stated that no local application, or internal remedy, can be of the slightest use in these cases. They do harm, inasmuch as they put off the only proper means of treatment, and every day's delay adds to the difficulty and danger.

Iodine paint, iodide of lead, or iodide of potash ointment externally, and syrup of iodide of iron and cod-liver oil internally, are almost invariably prescribed. They may benefit the prescriber financially; they can be of no possible service to the patient.

The ordinary sebaceous cysts or wens which we see so frequently

on the hairy scalp differ in many respects from those we have been speaking of; they are subcutaneous, are non-congenital, they have no deep connexions, and do not tend to excavate the bone.

In them we do not find the minute structures of the skin described by Lebert in the congenital cysts. At first they are apparently solid, filled with flattened epithelium. Afterwards the interior softens, liquefaction takes place, and thus the peculiar pap-like contents of such bodies is formed. There are many varieties in the contents. Occasionally the wall of the cyst feels horny, and even a portion of the horny lining may be detached, and become loose in the cyst. Again, the contents may be quite fluid, almost transparent, or mixed with oil, or blood: or crystals of cholesterin may be mixed with the layers of epidermic scales, and constitute the tumour called by Müller choleastoma, or laminated, fatty tumour. The contents also may undergo a calcareous degeneration, or a fatty degeneration, "so like honey as to deserve the name 'Meliceris'" (Paget).

Sebaceous tumours may arise in different ways. The simplest sebaceous tumour, or sebaceous accumulation, as it is called by Erasmus Wilson, is nothing more than an obstructed sebaceous follicle. They are very common on the nose, face, the shoulders, and back. They have a black spot on their top, which has given rise to the vulgar name "Blackheads." They often remain dormant, giving rise to no annoyance. When squeezed the contents exude, like small worms, or maggots, by which name they are also known.

Sir A. Cooper thought that all encysted tumours found on the head and back were obstructed sebaceous follicles. He himself had one on the lower part of the dorsal vertebræ of the diameter of two inches. On the scalp, however, sebaceous tumours are most frequently of independent origin; they are new formations, and the reason why we do not find in them, as in the congenital sebaceous tumours, the complicated structure of the skin is, as Paget^{*} expresses it, because "it is, perhaps, only during the vigour of the formative forces in the foetal, or earliest extra-uterine, periods of life that cysts thus highly organised and productive are ever formed."

It is curious that such tumours are frequently hereditary, particularly on the female side. Many observers have noticed this fact.

* *Lectures on Surgical Pathology.* Edited by Turner. P. 440.

As a general rule, the diagnosis of encysted tumours of the scalp is unattended with difficulty. Still mistakes have occurred. Lallement mistook an encephalocele for a sebaceous tumour, and attempted to cut it out, and Mr. Hewett^{*} relates the following interesting and highly instructive case:—"Once I was requested by a surgeon to remove from the scalp of a young woman a small sebaceous tumour, which, I was told, had already been removed twice, but had reappeared. Such a history for a sebaceous tumour was an odd one, but the secret of the reappearance of the tumour was soon explained when I came to examine it. In size and shape it certainly resembled a sebaceous tumour, but on putting my finger on it I at once perceived a distinct pulsation in the tumour, and this, and other points which need not now be alluded to, led me to believe that the tumour was of an encephaloid nature, and connected with the bones. Months rolled on, and such it ultimately proved to be."

The ordinary sebaceous tumours of the scalp range from the size of a pea to that of a hen-egg. They are generally multiple. Boyer mentions having counted twenty-three; I have counted fifteen on a lady's head. They do not all grow to the same size. Some never grow larger than a pea, or a hazel-nut, and if not irritated by the teeth of a comb, or by the pressure of a bonnet or hat, or by accidentally striking against some object, they may remain harmless for an indefinite period. In the dissecting room I have seen them in very old subjects.

In some instances, without the slightest local cause, they inflame and ulcerate, and we can only say that the inflammation, &c., depended on a derangement of the general health.

Now, it is important to recollect that if the general health is impaired these tumours are likely to become troublesome, and hence the advice given by Dr. Humphreys[†] concerning the removal of all tumours is so valuable. "It is always well (he says) to bear in mind that persons are most likely to consult us respecting them, or other growths of the like kind, when they are out of health, and, consequently, unfit to bear an operation. They do so because the tumour is then most productive of pain and annoyance.

These tumours are so easily removed that neither the patient or his friends think anything of it, and the surgeon too often does the same. We should never operate without making a searching

* Hewett, St. George's Hospital Reports, vol. iv., 1869.

† Lectures on Surgery, p. 135. Provincial Medical and Surgical Journal.

examination of our patient. The state of the viscera, particularly of the kidneys, should be most carefully inquired into, and if anything is seriously amiss the operation should be deferred. If erysipelas is prevalent at the time we should wait for a more favourable opportunity.

I have not noticed in Dublin that erysipelas is more prevalent in the months of March and April, when, as we all too well know, a keen east wind blows here. In London it is apparently otherwise, for Mr. Hewett remarks, when speaking on the subject—"Most carefully should the state of the atmosphere be attended to. With an easterly wind, for instance, I would postpone an operation such as the removal of a sebaceous tumour of the scalp."

For my part, I think as yet we are entirely ignorant of the atmospheric states that predispose to erysipelas, puerperal fever, or pyæmia.

A broad, particularly in Paris, caustics are much used for the removal of sebaceous tumours of the scalp, as it is believed that by their use the danger of erysipelas or pyæmia is lessened. I do not share that belief. I am certain that in every case, and in every part of the body, wounds made with the knife are less painful, and less likely to be followed by untoward results, and heal more quickly than when made by any other means. I do not mean to say that the knife should supersede all other methods of procedure in surgery, for every one knows that it cannot; but that a clean cut is more likely to give rise to blood-poisoning, &c., than caustic, electricity, ligatures, ecraseurs, &c., is to my mind unphysiological and untrue.

It is not advisable, as I see generally practised, to attempt to remove the cyst entire. It is tedious, and sometimes impracticable, so intimately is the skin attached to the most prominent part of the tumour. No doubt some surgeons may be desirous to show their patients their dexterity, or to preserve the specimen, but a more speedy and less painful method is to transfix the base of the tumour with a bistoury, and cut it through; then, having squeezed out the contents of the cyst with the finger, the cyst-wall is easily removed with a forceps.

If a patient has an insuperable objection (as some have) to a cutting operation, we may rub a piece of potassa fusa on the top of the tumour, and when the eschar becomes detached the cyst can be easily pulled away with a forceps.

After the removal with the knife the wound should be washed

with a weak solution of carbolic acid (20 grs. to the oz.), or a solution of chloride of zinc (10 grs. to the oz.)—I prefer the latter—and after all bleeding has ceased the edges should be brought together with carbolised horsehair, or carbolised gut sutures, and the dressing completed by retaining by a bandage a pledget of “tenax,” or carbolised tow, enveloped in muslin, on the wound.

After two days the dressing should be removed, and in general the edges will be found adherent, and the stitches may be cut out.

Occasionally sebaceous cysts attain a very large size. Sir A. Cooper removed one from the crown of a man's head so large that it prevented him from putting his hat on. There is a cast of the head in the museum of St. Thomas's Hospital, London. Mr. Hewett removed one from the head of a middle-aged woman. “It hung pendulous on the nape of the neck, and to hide it she had for years worn bonnets of a very large size.”

If these tumours inflame and ulcerate they give rise to considerable annoyance, and unless properly dealt with will not get well. A spontaneous cure is not to be expected in such a case. On the contrary, after the cyst bursts its base grows larger, thicker, and more vascular; the edge becomes elevated, thick, and also vascular; the centre appears hollowed out, and in a short time an ugly foul sore is formed, very closely resembling an advanced epithelial cancer. That these sores have been mistaken for cancerous ones is a fact well known, but if the history of the case is minutely inquired into there is not much likelihood of such a mistake being made. However, it should not be forgotten that it is quite possible to have a cancerous sore on the head with the history of an ulcerated sebaceous tumour, for if the predisposition to malignant disease exists the irritation of an inflamed or ulcerated cyst may determine the position of the malignant growth.

Even if the sore does not become malignant, the pain it causes, the loss of blood, the foul foetid discharge are well calculated to render a patient weak, pale, sallow, and anaemic, like one who is in the last stage of cancerous cachexy. Many such cases are on record. Perhaps the most remarkable one was that under the care of M. Chassaignac, and referred to by Mr. Hewett at page 105 in the valuable memoir which I have before mentioned. “Rosalie Robin, aged sixty-eight, was admitted into the Hospital St. Antoine in July, 1850, worn out from long-continued suffering. The face was waxy, puffy, and slightly oedematous, and so were the

hands and the feet. She had lost all appetite, breathed hard, and scarcely slept, such was the pain she suffered. On the top of the head was an enormous tumour, of the size and shape of a turban, the upper surface of which, extensively ulcerated, and of a reddish grey colour, bled freely when slightly touched. It was made up of several large irregular masses, some of which presented evident fluctuation. It appeared that at the age of twenty-five she for the first time perceived two small tumours on the top of the head, about the size of a filbert, and, from the description, evidently of a sebaceous character. These tumours remained much of the same size up to the age of forty, when she was struck on the head by the branch of a raspberry bush, a thorn of which ran into one of the sebaceous tumours. This gave exit to some of the sebaceous matter; the wound did not heal, and from time to time she was in the habit of squeezing out some of the contents of the tumour, and thus matters went on for some twenty years, the tumours having by this time grown to the size of a fowl's egg. When sixty years of age this woman fell from a carriage on her head, and struck these tumours. This gave rise to extensive bleeding, and in a fortnight afterwards this was followed by sharp lancinating pains in the tumour, which increased rapidly in size, and became as large as the first. The small wound, which had been stationary for upwards of twenty years, also rapidly increased in size, and it ulcerated, and daily gave rise to bleeding of an alarming character. Suppuration set in, the discharge being copious and most offensive. Such being the aspect of affairs, she was advised by a surgeon whom she consulted to have nothing done to the tumours, and thus matters went on for about five years more, the patient getting gradually weaker from the repeated bleedings and the constant pain. The tumour then took to growing more rapidly, until it became of an enormous size; it ulcerated extensively, but more in surface than in depth, and a year afterwards two other lumps made their appearance in the occipital region; they grew rapidly, soon became the size of the first, and at last joined on to the large tumours already on the top of the head. After the admission of the patient into the hospital she was twice attacked with extensive bleeding; the ulceration extended deeper and deeper, so as to involve the bones, which also gave, and left the dura mater perfectly bare, the pulsation of the brain being very evident. She died worn out, and on the 26th July the body was examined. No trace of disease existed in any of the glands of the cranial region."

Mr. Hewett also mentions that Chassaignac was not aware of the true nature of the case. He published an account of it under the name Cancroïde du Crâne. It is to M. Lebert we are indebted for a true account of the minute anatomy of this extraordinary case, and he showed that all the non-ulcerated tumours were cysts filled with sebaceous matter.

The following case was lately under my care:—

Patrick W., aged sixty years, a farmer, from the county Wexford, was admitted into the Mater Misericordiae Hospital on the 31st of last December, with a large tumour on his head. He stated that the tumour existed for twelve years, but was of small size until the last year or so. About seven months ago he struck his head against the top of a door, as he was entering a house. When the accident happened the tumour was the size of a hen-egg; and had never given him any annoyance. The blow caused considerable pain in the tumour, and in a few days the top ulcerated, and an ugly-looking sore formed, which bled freely if anything touched or irritated it. It continued to extend, and became very painful, notwithstanding the various applications applied to it by practitioners, qualified and unqualified. His health suffered much from the constant pain, profuse discharge, and frequent loss of blood. He was told he had cancer, and was advised to put himself under my care.



Ulcerated Sebaceous Tumour of the Scalp.—Case of Patrick W.
[From a Photograph.]

On examination the tumour measured three inches in diameter, almost perfectly circular; the base was hard, and one inch broad, and elevated one and a-half inches from the surrounding skin; the centre was much depressed and cup-shaped, covered with cauliflower granulations, and exuding a dark, sanguous, foul-smelling pus.

At first sight I was disposed to regard it as a malignant growth. The history of the case however, the absence of lymphatic engangement, and the presence of two small sebaceous tumours, about the size of a hazel-nut, on the scalp, led me to believe that it was not malignant, but an ulcerated sebaceous cyst.

There was no trace of organic disease present, and I determined to remove the tumour; but before doing so I directed him to take the following medicine for a week:—*R. tinct. ferri perchloridi 3ij., glycerin, 3ss., aquæ distill. ad 3viii.; M.* two tablespoonfuls three times a day. I may here remark that I invariably give iron for some time to patients before I perform any operation (when time permits), and I am pretty confident by such treatment I lessen the danger of blood-poisoning.

On the 7th of January I removed the tumour in the following manner, having first cut out the two small cysts:—

I made two incisions at right angles through the tumour, and then with my finger scooped out a great quantity of thick sebaceous matter, and by the same means separated the cyst circumferentially to a considerable extent. At parts it was firmly incorporated with the skin, and I was obliged to use the scalpel freely; in the centre it was attached to the periosteum, and before it was all removed the bone was laid bare to the extent of a square inch. *The bone was perfectly smooth, vascular; it was not depressed, nor was there an elevated rim of bone present,* such as has been described in some cases of congenital tumours in the neighbourhood of the orbit and elsewhere. The haemorrhage was considerable during the operation; it was arrested by the fingers of assistants. No vessel required to be twisted or ligatured. The wound was stuffed with pledgets of lint, saturated with a solution of carbolic acid (20 grs. to the oz.) A large compress of tenax placed over the lint, and retained by a bandage, completed the dressing. The case progressed favourably, a thin shell of a bone the size of a six-pence exfoliated, and the patient returned home quite well six weeks afterwards.

A fortnight before he returned home he called my attention to his left fore-arm, and I found on it a sebaceous tumour the size of a walnut. I removed it, but it did not heal kindly. A smart attack of erysipelas of the arm delayed the cure, but fortunately it did not interfere with the satisfactory progress of the scalp. The occurrence of erysipelas after so slight an operation on the arm shows us how cautious we should be before undertaking the removal of a sebaceous tumour, as I have before stated. It is likely that my

patient's health was weakened by his necessary confinement to bed and the house, and that he was in a worse state to resist the effects of injury, whether surgical or otherwise, than he was when he came to Dublin from the country. There was no erysipelas in the hospital at the time, nor was I in attendance on any case in private. I presume also that the prophylactic effects of the iron had passed away.

At one of the meetings of the Surgical Society of Ireland in 1866,^{*} Mr. B. Wills Richardson read a very valuable paper on the question as to the frequency of absorption of the cranium by the pressure of ordinary non-congenital atheromatous tumours, in which he stated that absorption of the cranium by ordinary sebaceous cysts was a very rare occurrence; in fact, perhaps never occurred; and as some members of the Society at a former meeting expressed a different opinion Mr. Richardson wrote to several distinguished pathologists on the subject—to Mr. Holmes, of St. George's Hospital, London; to Mr. Flower, the curator of the College of Surgeons Museum, London; to Dr. W. Sanders, the curator of the College of Surgeons, Edinburgh; to Mr. Savory, of St. Bartholomew's, London; to Mr. Wilks, of St. Thomas's Hospital, London; to Mr. Spencer Cobbold, of the Middlesex Hospital; to Sir James Paget; to Dr. Barker, the curator of the College of Surgeons, Dublin; and one and all replied that they had never seen a case of absorption from an ordinary atheromatous tumour. He also communicated with Cruveilhier (*clarum et venerabile nomen*), and received the following reply:—

“PARIS, March 16, 1866.

“MONSIEUR HONORÉE CONFRÈRE.—You ask me, first, if I have seen cases in which an ordinary atheromatous tumour of the scalp has caused absorption of the subjacent bone.

“2nd. If the cups or depressions seen in these cases are formed in the bone, or in the tissues which cover it, or if they are formed in bone.

“This is my answer—1st. I have never seen cases in which an atheromatous tumour of the hairy scalp caused absorption of the subjacent bone. I add that is impossible, because these tumours are nothing else but cysts, which cysts have for their starting point the sebaceous follicles of the hairy scalp, and consequently always are developed on the side of the epidermic surface of the skin. The aponeurosis of the occipito-frontalis muscle is an obstacle which the cyst could not surmount, whereas it finds an easy development on the side of the epidermic surface of the skin. 2nd. The cases of absorption of the bones of the skull are entirely foreign to the cases of sebaceous or melicericous cysts of the hairy scalp.

“The fungous tumours of the dura mater can wear out the bones from the inside to

* Medical Press and Circular, 1866, p. 424.

the outside. The pressure which they exercise on the bones of the skull, the rising of the brain at each contraction of the heart, seem to me to explain perfectly the bony atrophy, which sometimes goes as far as perforation.

"I beg you, Monsieur, and very honoured confrère, to accept the assurance of my friendship.

"*CHAUVEAUXHIEU.*"

I do not believe the ordinary sebaceous cyst ever causes absorption, and the case I have narrated corroborates the view, for although the cyst was at some parts attached to the periosteum when the bone was laid bare, there was neither loss of substance in the centre, or a prominent bony ring circumferentially, and that all the tumours which have been known to have done so have been congenital.

In conclusion, the following practical rules may be laid down regarding the treatment of sebaceous tumours of the scalp:—

1. That those which occur at birth, or in early infancy, should be removed without delay, as experience proves such tumours have a tendency to cause destruction of the bone, and to perforate the skull.
2. That the ordinary sebaceous tumours of the hairy scalp do not cause absorption of the bone.
3. That when a sebaceous cyst ulcerates a spontaneous cure is not to be expected.
4. That when a sebaceous cyst ulcerates it should be entirely removed as soon as possible.
5. That the ordinary sebaceous tumours may remain harmless for an indefinite time, and do not necessarily grow larger from day to day.
6. That the surgeon should not operate on them unless the patient is in good health, and after a careful examination, particularly of the urinary organs.
7. That for removing such tumours the knife is preferable to caustic.
8. That external applications and internal remedies are worse than useless.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Diseases of the Chest; being contributions to their Clinical History, Pathology, and Treatment. By A. T. H. WATERS, M.D. Second edition, revised and enlarged. 1873.

We have to congratulate the profession on the appearance, in an enlarged form, of Dr. Waters' book on Diseases of the Chest.

The first edition of this work, which was published in 1868, was well received. In its new form it has been enlarged by the addition of seven chapters—viz., on haemoptysis, hay fever, aortic regurgitation, mitral constriction, thoracic aneurism, and the use of chloral in certain diseases of the chest.

The book consists of two parts—viz., “Diseases of the Lungs” and “Diseases of the Heart, and Thoracic Aneurism.” The former is divided into twenty-three, and the latter into eleven chapters. We would remark in *limine*, that a chapter should be regarded as a generic group, comprising a number of kindred subjects, its several “species.” In the work before us the chaptering seems arbitrary, and quite irrespective of any uniform or definite system. Thus, for example, no less than seven chapters are devoted to the discussion of pneumonia, and six to pulmonary emphysema; whilst phthisis, its nature and treatment, is disposed of in a single chapter of twenty-four pages.

The first chapter treats of the anatomy of the lungs, and contains, in epitome, the well-known views of the author, as expounded in his classical prize essay, “The Anatomy of the Human Lung.” This chapter might, with advantage, be supplemented by a brief exposition of the physiology of the lungs, in which so much has been recently accomplished by the labours of the late Dr. Hyde-Salter, and other experimentalists.

The air-sacs are, as we believe, correctly represented as the seat of pneumonia, and the capillary plexus derived from the pulmonary artery as the only vascular system implicated, except where bronchitis co-exists, and then the bronchial arteries are engaged.

Dr. Waters admits an ante-congestion stage of pneumonia, characterised by dryness and hyperæmia of the lining membrane, and announced by harsh puerile respiration, as long since affirmed by Dr. Stokes.

There is, we believe, such a stage, but it is of very brief duration, and rarely presented to the physician, because he is but seldom consulted till the urgency of the symptoms associated with veritable congestion demand his interference. Puerile respiration has its seat at the entrance to the air sacs, and is due to the swollen, and, as yet, dry state of the lining membrane of these narrow passages; whilst crepitating rale is located in the air-sacs themselves.

Among the symptoms of pneumonia Dr. Waters does not mention labial and nasal herpes, which, difficult though it may be to explain their connexion with that disease, are rarely absent in genuine examples of it. In the treatment of pneumonia alcohol, administered eclectically, is recommended as a better anti-pyretic than salines or antimony, and in many cases it should be given from the primary accession of symptoms. In the domain of physiology, no doubt, alcohol is a heat-depressant; but we have grave doubts that in acute disease of the sthenic type it can be safely, even though it might be efficaciously, used for the purpose mentioned. We agree with the author, that in certain cases of pneumonia alcohol is demanded from the outset, but, in the work before us, these cases are not distinguished by any definite complexion. In Dublin we have been long accustomed to speak of such as examples of "typhoid pneumonia, i.e., characterised by the "typhous state," and requiring in their treatment an amount of alcoholic stimulants far in excess of the maximal quantity given by Dr. Waters—viz., eight ounces of brandy in the twenty-four hours. We have repeatedly given in such cases twelve and sixteen ounces of whiskey within the same period, and with indubitable advantage to the patient. The superior lobe of one or of both lungs is primarily engaged, the base remaining for some days, and in many cases to the end, unaffected, except hypostatically. Amongst the physical signs of typhoid pneumonia Dr. Waters does not mention "tympanitic dulness," or "muffled tympanitic resonance;" a sign of great significance, amply illustrated in the writings of Dublin physicians, and constantly exemplified in the Dublin hospitals. This form of the affection should, we believe, be treated mainly with quinine, in three to five grain doses, and large quantities of alcohol. The

former is not mentioned amongst the agents used by Dr. Waters. For the relief of pain in the side, often so urgent a symptom in pneumonia, opium is preferred to local abstraction of blood. We presume Dr. Waters means that opium may be given with advantage in pleuro-pneumonia, where the pleuritic element predominates, as a means of relieving pain. But it is necessary to draw the distinction between such cases and those constituting, as we believe, the majority, in which pneumonia is the primary and principal disease, and partial narcosis by an impure cerebral circulation already exists. Even in such cases as the former, where opium is not contra-indicated, and the primary object is to relieve pain, we confess to a weakness in favour of cupping or leeching, followed by a warm poultice, in preference to all other means of effecting the object proposed. In the treatment of nervous subjects and of those who cannot bear the loss of even a small quantity of blood, opium, where not forbidden by other considerations, supplies the best means of relieving pleuritic pain.

Turpentine and mustard are recommended as counter-irritants in the early stages of pneumonia, but in that of consolidation blisters are preferred. We are glad to find our practice thus sanctioned by so eminent an authority as Dr. Waters.

In regard to prognosis, the presence or absence of organic disease of the heart, liver, and kidneys should be considered. The presence of fatty degeneration of the heart would be, in our judgment, of especially evil augury in this, or in any other acute febrile disease. Previous habits of intemperance, not alluded to by the author, constitute in themselves a special ground for an unfavourable prognosis.

The administration of stimulants should be in some measure governed by the rate of the pulse. The more rapid the pulse the greater the need for stimulants, and under their use subsidence of the pulse-rate would indicate their favourable action. This is, we believe, a good rule, which here, as in typhus fever, finds its explanation in the state of the heart. Rise in the pulse-rate, however, might indicate, either that stimulants were disagreeing, or that the quantity given was not sufficient.

A form of pneumonia distinguished as "rheumatic" is characterised by insidiousness. There is frequently no pain, cough, or expectoration associated with it. The prognosis, however, is favourable, and the treatment should consist in alkalies, opium, and stimulants.

Some interesting statistics, deduced from a total of 77 cases treated in hospital, are given. The largest number of these occurred between the ages of 20 and 30 years. The disease was single in 67, and double in 10 cases. The liability of the two lungs was shown to be nearly equal, that of the left being slightly in excess. Venesection was not practised in a single instance, and only three patients were cupped. Leeches were applied in only three instances. Nutrients were given from the outset, and in the solid form as early as they could be taken. There were only two deaths—one from pleural effusion, and the other within forty-eight hours after admission, the patient having been moribund when received. The average duration from commencement of illness to that of convalescence was $11\frac{1}{2}$ days, and from commencement of treatment $8\frac{1}{2}$ days. The average stay in hospital of all the cases was $26\frac{1}{2}$ days; and excluding 14 cases of protracted recovery from complication with other diseases $21\frac{1}{2}$ days. This death-rate is exceedingly low, and very creditable to Dr. Waters' practice. We believe, however, that hygienic influences are of the utmost consequence in the treatment of pneumonia. Stimulants are mainly relied on, whilst depressants are deprecated in combating the pneumonia of children.

To Dr. Waters we owe the interesting observation, that the pulse in pneumonia is all but invariably dicrotic.

It is shown that in the progress of vesicular emphysema the cavities and walls of the air sacs undergo definite changes, amongst which the loss of the property of recoil or re-action in the elastic fibres, as indicated by "less tendency to curl up at their ends," is mentioned. This we have repeatedly witnessed in the elastic tissue of old hernial sacs.

Hooping cough and chronic bronchitis are very properly charged with the initiative in the production of pulmonary emphysema, to which ultimately, however, degeneration of tissue likewise contributes. Faint inspiratory sound constitutes one of its earliest signs.

Thrombosis of the heart is due mainly to blood-stasis, and it explains the small and feeble pulse so often associated with vigorous action of the heart, in the ultimate stages of emphysema complicated with bronchitis. Irrespectively of the lividity of surface, full of temperature, partial suppression of pulse, and tumultuous action of the heart, which characterise intra-cardial thrombosis, there are other remarkable and almost pathognomonic symptoms

of this condition, which are alluded to, but not described, by Dr. Waters—namely, extreme restlessness of the patient, and gasping for air, without proportionate bronchial obstruction.

We quite agree with Dr. Waters in the opinion that Gairdner's theory of pulmonary collapse, and compensatory emphysema, is not tenable. The cause shown against it in the text is conclusive. We are likewise in agreement with him when he declares, in opposition to the authority of Rokitansky, that pulmonary emphysema may occur in phthisical subjects, and that primary emphysema may be followed by tubercular development in the lungs. The treatment of pulmonary emphysema should be mainly constitutional, and consist in the administration of iron, quinine, and nutritious diet, and restriction in the use of liquids. The bronchitic complication should be treated with stimulant expectorants, alcohol, and counter-irritants, and subsequently with steel tonics. In extreme cases he advocates Corrigan's plan of giving spirits of turpentine in one to four drachm doses. The strangury, which, in Dr. Waters' practice was in some instances caused by the use of this drug, might have been obviated by the addition of almond emulsion and a few drops of laudanum. We would venture to suggest to Dr. Waters, as a means of enhancing the efficacy of turpentine in the cases mentioned, the simultaneous use of tincture of digitalis and spirit of chloroform; and in cases of threatened suffocation by accumulated phlegm, the administration of an ipecacuan emetic, followed by alcoholic stimulants.

In the treatment of pleuritic effusion, painting of the chest with iodine, and the internal use of iodide of potassium, are strongly recommended. We must confess to little faith in the external use of iodine as a means of dispersing liquid collections. Not so, however, iodide of potassium as a diuretic, especially if combined with large doses of spirit of nitrous ether. We unreservedly subscribe the doctrine, that when a copious pleural effusion shows no sign of diminution after some weeks of active treatment, and earlier if the breathing be greatly embarrassed, and paroxysms of dyspnoea suddenly appear, it should be removed by "aspiration."

Arsenic is recommended in the first stage of phthisis. We can also speak highly of its utility, especially as a means of arresting tissue-waste. Gallic acid, in large doses, is deemed the best agent for arresting haemoptysis. It is, no doubt, of great value where the haemorrhage is *passive*; but when it is associated with pyrexial excitement we would prefer acetate of lead. Dr. Waters' experience

of the liquid extract of ergot for this purpose has not been favourable. Such, however, has not been ours.

In the treatment of pericarditis Dr. Waters relies mainly upon alcoholic stimulants and opium, whilst he decries the use of mercury. No doubt, the signs of failing circulation often demand the use of alcohol in the course of pericarditis, and occasionally from the outset; but there are many cases which, in our judgment, do not require it, and which would be even injured by its use—*e.g.*, those of acute pericarditis complicating a primary attack of rheumatic arthritis in a previously strong man. In such a case we would not hesitate to deplete locally, and administer mercury in the most rapid manner, whilst withholding alcohol, at least in the early period of the disease.

He truly remarks, that dicrotism of the pulse indicates debility and low arterial tension, and that it demands the use of alcohol. So likewise do intermittence of the heart and delirium. As correctly stated by the author, alcoholic stimulants are beneficial if there be any sign of "flagging." Local abstraction of blood has been seldom had recourse to by Dr. Waters in the treatment of pericarditis. As a means of relieving precordial pain he has found opium equally efficacious. We confess, notwithstanding, to a preference for leeching.

There are several most judicious remarks on fatty degeneration of the heart, and on cardiac asthma, which want of space precludes us from noticing. One we cannot forbear adverting to—namely, that in cases of valvular disease, consecutive degeneration of the substance of the heart is the real cause of urgent symptoms and of danger, and that in acute inflammations, and in fever, the presence of fatty degeneration of the heart greatly increases the probability of a fatal issue. In the treatment of this affection, iron, strychnia, and digitalis (with caution) are recommended. We do not agree with the author in the opinion that rheumatism "is by no means the most frequent cause of chronic valvular disease" of the heart. He truly remarks that gout and Bright's disease are common causes of valvular disorganization, but we cannot, even on his authority, admit pulmonary emphysema into this category. We are quite of the author's opinion, that vesicular emphysema of the lungs is, in its ultimate development, a disease of special tissue—degeneration; but that the valves of the heart are concurrently or consecutively, much less causatively, associated with this tissue change, is certainly contrary to our experience.

In regard to the cause of non-organic mitral murmurs of systolic rhythm, there is ample room for speculation; the hypothesis of an "unequal vibration" of the valve, due to thickening or deposit, is therefore admissible, but, to us, not satisfactory.

Systolic murmur at the base may, as stated, arise from atherosomatous roughening of the root of the aorta, without valvular disease; but we think such murmurs are distinguishable from those of valvular origin, by the circumstances that, unlike the latter, they are loudest *above* the base, and are *not* transmitted into the arteries of the neck.

Dr. Waters holds that the aortic valves are more frequently affected than the mitral. In this opinion we cannot concur, but we agree with him, that where sudden death is *apparently* due to valvular disease, the heart is always fatty.

The rules laid down for the treatment of valvular disease are eminently judicious, and we strongly recommend them for adoption in practice. They are based upon the philosophical assumption, that, however produced, chronic valvular lesions are incurable, and that so long as nutrition is maintained, and the organs of circulation are not over-taxed, valvular disease of the heart may be contemplated without fear. Digitalis is recommended where cardiac debility exists, but it is strongly, and we think very properly, deprecated in cases of associated and advanced renal disease.

Inadequacy of the aortic valves may be due to atheroma and dilatation of the aorta, consecutive to "granular degeneration" of the kidneys, without more than thickening of the valves themselves. We would even go further, and say that such may be the case in the absence of renal disease of any kind.

In regard to presystolic murmur, we do not share the author's "belief, that this murmur is far more frequently absent than present, even where there is great obstruction at the mitral orifice." We hold, on the contrary, not only that its *presence* affords proof of the existence of mitral obstruction, but that its *absence* beyond a very brief period, and then under circumstances suggestive of great debility of the heart, is equally conclusive against the supposition that such lesion exists. The murmur is, no doubt, liable to variation in distinctness from day to day, but in one instance only, out of a very great number, have we missed it for a whole day where it had been previously heard, save in the process of actual dissolution. In the exceptional case the patient was nervous and weak, and the murmur was again audible on the

following day. It is admitted by the author that "the presence or absence of this murmur may depend on the greater or less vigour with which the auricle contracts."

To the following precept we take strong exception:—"In forming your diagnosis of this condition (mitral obstruction), you must be guided by the general symptoms, the character of the pulse, and of the heart's action." The diagnosis of cardiac disease has reached a point considerably in advance of that implied in the last quotation. The general symptoms in many cases of veritable mitral stenosis are of the most trivial character, and by no means specific, or there may be even no symptoms whatever suggestive of cardiac disease for a lengthened period. The pulse is, we maintain, no less inconclusive than the other symptoms; and the action of the heart exhibits no special characteristic, save when fremitus, which, by its rhythm is even pathognomonic, is associated with it.

We have already considerably transgressed the limits we assigned to ourselves when entering upon the review of this work, and have, therefore, only space to express our approval of the chapters on "thoracic aneurism" and "the use of hydrate of chloral in the treatment of certain diseases of the chest."

In the exercise of our right of free and impartial criticism, we have deemed it our duty to select the few passages of this work to which we take exception, rather than the many which claim our unqualified approval. This we have done in no unfriendly spirit, but in the interest of science, and, let us add, in the hope that the third edition of this book, which is likely to be soon demanded, as that of one of the most valuable treatises hitherto published on diseases of the chest, may appear without the few blemishes which disfigure the volume before us.

Medical Lexicon. A Dictionary of Medical Science, &c.; with the Accentuation and Etymology of the Terms, and the French and other Synonyms By ROBLEY DUNGLISON, M.D., LL.D., &c. A New Edition, Enlarged and Thoroughly Revised. By RICHARD J. DUNGLISON, M.D. London: J. & A. Churchill. 1874. Large 8vo. Pp. 1,131.

THE rapid progress in all branches of science—so characteristic a feature of the present age—has had a remarkable effect on contemporaneous literature. Works, which but yesterday were the

exponents of the most advanced phase of modern thought, are to-day obsolete and superseded. Encyclopædias and dictionaries have especially felt this antiquating influence; and frequently it has happened that, before one edition of even a popular work of this class is out of print, the introduction of a host of new terms or entities calls for a revision of the most radical kind.

Dunglison's Dictionary and Mayne's Lexicon—both works of the greatest value—have formed no exception to this inexorable fate. The latter is now under revision; and the New Sydenham Society promises to place in the subscribers' hands a new edition, with large additions and corrections. The former has already been revised and modernised by the son of its distinguished author; and the fruit of his labours is to be found in the volume at present before us.

On the whole, we can congratulate Dr. Dunglison on the manner in which he has accomplished a most difficult undertaking. Still, a reviewer should be critical, and accordingly we add that, in our opinion, there are two decidedly weak points in this work. In the first place, some of the articles are too long. In a dictionary we do not look for a *treatise* on any subject—the pages of an encyclopaedia are the proper place for that. Now, Dr. Dunglison repeatedly extends his definitions into treatises on points connected with anatomy, therapeutics, *materia medica*, chemistry, or some other branch of medical science. His article on "Climate" is, no doubt, most valuable, but it is not the less sadly out of place in a mere lexicon of terms and definitions. The second point with which we have to quarrel is his etymology. It is surely better to give no derivations at all than to give incorrect ones, or to play tricks with Greek words. For example: on page 228 we find two words, "cnicus" and "cnidosis"—"cnicus" is said to be the Greek *κνίκος*, but, unfortunately, there is no such word. *Knīkos* is the Greek for *carthamus tinctorius*. "Cnidosis," or its Greek equivalent *κνίδωσις*, is given as derived from "*cnide*" and "*osis*," instead of saying "cnidosis" (Gk. "*κνίδωσις*") fr. "*κνίδη*" = "urtica". With regard to orthography, Dr. Dunglison should not countenance such vulgarisms as "cœcal" for "cæcal," "coecitas" for "cæcitas," and "cœcum" for "cæcum" (all on page 231). No doubt he gives the correct spellings in preference on page 153, but the insertion of the incorrect words is quite uncalled for.

But, having said so much, we have exhausted our objections to the work which, in its matter, style, and general arrangement, is

nearly all that can be desired. The typographical errors are exceedingly few in number, and the printing of the work reflects as great credit on the London publishers, Messrs. Churchill, as the arrangement of the matter does on Dr. Dunglison.

Nordiskt Medicinskt Arkiv. Redigeradt af DR. AXEL KEY, Prof. i Patolog. Anat. i Stockholm. Sjette Bandet. Första Häftet. 1874. Stockholm: Samson och Wallin.

Northern Medical Archives. Edited by DR. AXEL KEY, Professor of Pathological Anatomy, at Stockholm. Volume VI. Part I. 1874.

THE present number of the *Northern Medical Archives* is unusually rich in articles on histological and physiological researches. We have selected a few papers for more particular notice.

The first of these is by Professor Axel Key and Dr. Gustaf Retzius, on "Openings Communicating between the Ventricles of the Brain and the Subarachnoid Spaces."

The authors refer to their previous articles in which they pointed out—1. That the various subarachnoid spaces, both cerebral and spinal, are in uninterrupted communication with one another. 2. That the perivascular lymphatic sheaths in the pia mater are but invaginating prolongations from subarachnoid spaces. 3. That the epicerebral and epispinal spaces described by His as existing under the pia mater, are but artificial productions; and that the vessels which enter the substance of the brain carry with them invaginating prolongations similar to those in the pia mater. 4. That the subarachnoid spaces are in direct connexion with the serous spaces and lymphatic channels of the organs of special sense, as well as with the "serous" system described by the authors as traceable in all nerves to their termination.

By the method of injection, the authors have established the existence of communication between the ventricles of the brain and the subarachnoid space. In the present article they describe three openings, all previously described by anatomists, but of which the exact nature and even the existence was doubted.

All three communicate between the fourth ventricle and the subarachnoid space which is situated between the cerebellum and the back of the medulla oblongata, to which the authors give the name,

cisterna magna cerebello-medullaris. The first of these—that originally described by Magendie and figured by Henle (*Nervenlehre*, p. 317)—is situated at the inferior angle of the floor of the fourth ventricle, anterior to, and bounded by, the *tela choroidea*, as it passes in. The others—admitted only by Luschka—are placed one on either side, at the inner margin of the flocculus, and concealed by the eighth pair of nerves. Through each of these is transmitted the lateral choroid plexus, which is here somewhat constricted. These latter the authors believe to be valvular, so as only to allow of exit from the ventricle.

Prof. P. L. Panum describes a new apparatus for maintaining a constant and accurately determined temperature in objects under microscopic examination.

To obviate the inaccuracies dependent on the use of the various forms of "warm stage" the author has adopted a "warm chamber." This chamber encloses the lower part of the microscope, stage and all. The sides, back, and roof, are made of tin, and are hollow. The front is a thick plate of glass, removable at will. There is an opening in each side wall to allow of the moving of the preparation; and two openings in the roof, one for the tube of the microscope, and the other for a thermometer, the bulb of which can be allowed to descend on to the preparation. One of the walls expands at the bottom into a cistern, under which is placed a spirit lamp. The whole is filled with water, and as this is heated it ascends through the walls and roof, and on cooling returns again to the cistern. When a fixed temperature has been attained in the chamber, the mass of hot water surrounding it is so great that the opening of even the anterior glass door produces but a transitory effect.

Prof. Axel Key and Dr. Gustaf Retzius also contribute "A Study of the Subarachnoid Trabeculæ."

This is an addendum to their article on the "Anatomy of the Nervous System," in Vol. IV., in which they described an endothelial covering on the trabeculæ in the subarachnoid spaces. The present paper treats of the structure of the trabeculæ themselves. The examination of these trabeculæ, even in neutral fluid, will often show a network of more or less fine fibres immediately under the endothelium, which surround the fibrillar tissue of the trabeculæ in an annular or spiral manner. The addition of acetic acid demonstrates these fibres instantly, by swelling up the fibrillar tissue and leaving them intact. In this respect they resemble elastic fibres. The authors have not been able to decide whether

there exists a continuous membrane filling up the meshes of this network.

The subarachnoid tissue at the base of the brain and cerebellum, and over the pons varolii and medulla oblongata, presents some peculiarities. The fibrillar fasciculi are surrounded by a thick mass, clear and homogeneous, studded with granules which, on closer examination, prove to be optical sections of exceedingly fine encircling fibres. The fibres themselves are seen on focusing the upper or under surface of the fasciculus. They are for the most part circular, but varieties of direction are observable. Their behaviour with acetic acid is not distinctive either of elastic or fibrillar tissue. They do not swell much, but they become paler and less distinct.

They sometimes co-exist with the coarser, more obviously elastic, fibres.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

THIRTY-SIXTH ANNUAL SESSION.

Saturday, 13th June, 1874.

LOMBE ATTHILL, M.D., Vice-President, in the Chair.

Remarks on Incontinence of Urine in Children. By HENRY KENNEDY, A.B., M.B., Vice-President College of Physicians; Physician to the Whitworth Hospital, Drumcondra, &c.

In the following paper I would make a few remarks on the subject of incontinence of urine in children. The affection is not a serious one, but it is of sufficient consequence to render it very often a most distressing one, and it may be said to be always very difficult to cure. I do not know that I have anything new on the matter to offer to the meeting, but what I have to say will, I hope, elicit a discussion, and so collect the experience of many on this subject.

Before speaking of the immediate matter before us, I would just remind you for a moment of the marked differences—I might almost call them contrasts—which exist amongst infants at and after birth. Witness their size and weight, the growth and colour of the hair, and the appearance of the teeth. The varieties in each and all these points need not be dwelt on. Nor are they confined to what might be called externals. The varieties extend to the internal functions as well. Thus you may observe marked differences as to the susceptibility of the stomach and bowels; or when the infant comes to get food, such as bread, you may observe differences, not so much in the quantity taken as in the very mode of swallowing it. Whilst in most the act comes, as it were, by a kind of instinct, in others care is required, else there will be a risk of choking them; and even when they grow up so as to be able to feed themselves, every one must have observed that the act of

swallowing is not performed in the same perfect way by all. Some require a mouthful of drink frequently; whilst in others the tendency to a bit going the wrong way, as it is expressed, is out of all proportion more frequent than with other children. What I wish to exemplify, too, may be observed on other points, more particularly as the child grows up. Thus some are essentially awkward in all their ways and actions, and no education will cure them. Some are awkward, if I may so express it, in their powers of speech, and will continue to speak thick, years after others can speak perfectly. I am sure it has been observed by others, as by myself, that girls speak earlier and more perfectly than boys; and in connexion with this subject it is well ascertained that stammering is much more common amongst males than females. But it may be asked here, what have these remarks to say to the subject of my paper? Much, as I conceive; for they prove that the varied functions of our frames are liable—in childhood, at least—to certain derangements which mar the harmony that would otherwise exist; and there are few who do not exhibit, at this period of life, some one or more of those deviations to which I have alluded. Now these diversities in the mode of performance of natural functions may be either of a temporary or a more permanent character, and it is in this class I would place the affection to which I wish more particularly to ask your attention at present.

Incontinence of urine clearly belongs to one of those deviations from actual health of which I have been speaking. What the exact cause is it would be hard to determine, but it would seem to be a want of nervous influence in the sphincter of the bladder; or probably it might be better expressed by saying that the proper balance of power between the retaining and expulsive powers was lost for the time. I say for the time, as in the great majority of instances the affection is intermitting, or, if not actually intermitting, is at least worse at one period than another. This fact proves, at any rate, that whatever the cause be it cannot be due to any abiding disease. If it were, it would be very hard to understand why it should intermit, as it certainly does. That the affection is not due to what we understand as a delicate constitution is, I think, pretty certain. I have often seen the affection in robust children—indeed, I am not sure if they be not the majority. I think, however, the most of them had a marked mobility—if I may so express it—of the nervous system. Neither, in connexion with this part of the subject, must we forget what is to be met with in the adult, where considerable diversity in the function of the bladder is known to exist. You must all be familiar with these varieties, and I only allude to them here to show that if they exist in the adult, where all the functions may be supposed to have reached their maturity, they may much more readily prevail in infancy and childhood.

In connexion with this infirmity of the bladder, it is worth noting how rarely the bowel is implicated. Yet this does sometimes occur, intermittently, as it were; but I have never seen it to the same degree as occurs with the bladder, nor have I ever been consulted about it. The parents have looked upon it as a casualty; yet to myself it has appeared exactly analogous to what occurs in the bladder. Need I say I am not speaking of what often occurs in the progress of the fevers of children, but of what takes place when the child is, to all appearance at least, in good health.

For so far the remarks made have had one object in view, which was to show that incontinence of urine in children is but one of the ways in which infirmity of the frame declares itself in childhood. What this weakness arises from is hard to make out, but it seems likely to be some cause in the nervous system itself. We know that when a child is born with any defect, such as a weak and atrophied side of the body, this is due to an arrest of development of a part of the brain; and so I take it to be—though in a greatly less degree—with the affection now under consideration. That there is no real disease may be taken for granted, else recovery would never take place, which would be contrary to all our experience. The affection seems to myself to be as close to real disease as it could be, consistent with perfect recovery. This would of course be the worst form of the affection, any others being of a lighter character and easier recovered from. Considerations of the kind advanced are, I believe, useful, but I shall not dwell on them longer at present.

On the affection itself I need not keep you one moment. It requires no description. The child wets the bed once, twice, or, as I have known, three times during the night. Nor is the infirmity confined to the night, as possibly many suppose. I have known it occur in the day-time. The very last case I saw was of this kind; but unfortunately I lost sight of it, having seen it only twice. The boy was eight years of age, and small for his years. The affection had not been of long duration. On the closest inquiry I failed to make out any such specific cause as would account for it. Cases of this kind are rare. As to the sex, boys are, I believe, more frequently affected than girls; but the latter are by no means free of it. I have both seen and known of different instances in girls. It is unnecessary to state that the duration of the complaint is most uncertain. In severe cases it has continued till the change from boyhood to manhood took place, and then only has it ceased. Probably most whom I address have known of instances where boys had to be taken from school on account of it. In a very obstinate case in a female, of which I knew, the infirmity continued up to womanhood, and ceased only when the patient married. I confess it appeared to me at the time a bold experiment; but marry she would, and the result proved she was right. On the whole, and in the worst

cases, both manhood and womanhood may be looked on as a barrier beyond which period the infirmity will cease, but it must be allowed to be a grievous calamity when it continues as long as this. In connexion with the duration of this state, we must not forget a point in its natural history to which I have before adverted—I mean the intermitting character of the complaint. I presume most present are aware of the fact that the affection will often cease, and very suddenly, but only to recur again after an interval. On other occasions, again, its intensity will lessen, if I may speak of it, without quite ceasing; and then it will return to its former state. This kind of intermission it is certainly very hard to explain; but it is prudent not to forget the possibility of its occurrence, more particularly when we come to consider the treatment, which is the next point to which I would ask your attention.

The treatment of this affection may be divided into two kinds—the mechanical and the medical. Amongst the former of these must be noticed what was suggested by Sir D. Corrigan a few years back, which consisted in the application of strong collodion to the orifice of the prepuce, and so preventing the escape of the urine for the time. This idea must, I fear, be given up; for it is more than probable the urine would not be retained in the bladder, but would make its way into the prepuce—that is, supposing the orifice was so glued as to keep it there. And that this is not mere speculation I may mention the following. I had taken a boy of ten years of age, who laboured under the infirmity, to the late Sir Philip Crampton for his advice. In the course of our conversation the idea of tying the prepuce was spoken of, but to this Sir Philip objected, inasmueh as he had known of a case in which this plan had been adopted, and the result was that the prepuce was literally turned into a bladder—an infirmity from which the sufferer was not freed as long as Sir Philip knew him. A more feasible plan with boys—and one which, indeed, is very old, having been proposed and acted on long since—is the application of a piece of bougie to the under surface of the penis, and keeping it there by means of sticking plaster. I tried it myself in the very ease spoken of above, but I found very much more difficulty than might at first sight appear. It had of course to be used at night, and taken off in a few hours, and it entailed close watching. Besides, too, it gave rise to some pain; though this was very probably due to its being applied too tight. Still the plan is one of which, I think, we should not lose sight. I can easily conceive a case in which, all other measures failing, we would be justified in trying this one. Nor would the difficulties be as great now as they formerly were; for we have got vulcanised indian-rubber to deal with, and it seems clear to me that this substance, probably in the form of a ring, would be just to our purpose. The pressure, it is obvious, should be at the root of the penis, and it should not be undertaken except under medical supervision. The

object is to break the wrong habit of the system ; and if this be done for three or four nights, there is a strong probability that the proper function of the bladder will be restored, and the infirmity cured. It need scarcely be added that it is only to boys these remarks apply, and it is when other measures have failed that this one should be tried. A second means which has been proposed for treating the affection, and which would come under the head of mechanical, is the position of the patient whilst in bed. It has been said that if they be kept on their side there is not that tendency to empty the bladder that exists when lying on their back ; and this has been explained by supposing that in the latter the urine irritates the trigone of the bladder, and so causes the organ to empty itself. Before taking up this idea we ought to be sure that the statement is true. To myself it seems very unlikely, and I know in one instance it was not the case, as the patient, a boy, wet the bed, no matter in what position he lay. Besides, it is hard to understand how any quantity of urine can be in the bladder without coming in contact with the trigone.

It now remains to make a few remarks on what I have called the medical treatment of the affection, and this divides itself into general and special measures. Amongst the former will be placed the regulation of the quantity of fluid taken, as well as the time of the day it is used. There can be no doubt that if any over-quantity be taken towards evening, it must greatly increase the tendency to the complaint. Hence the necessity for regulating the quantity. Of the fluids used, I think tea has an injurious effect, and should be avoided. Speaking of the quantity of fluid to be used reminds me of a plan which, when it can be carried out, is always of use ; nor do I recollect seeing it noticed in the books treating of the subject—I mean teaching the patient, during the day-time, to retain the urine as long as is possible. I have no doubt this is useful, though, owing to the age of some of the patients, it is not always available. You will observe it is the very opposite of a plan which is in very general use—I mean taking up the patient once or oftener during the night. By this means the unpleasant effects of the infirmity may certainly be averted, but otherwise I look on the proceeding as decidedly objectionable. It educates the bladder to empty itself the more frequently, and this is precisely what we do not want.

Amongst the medical means employed for the cure of the affection, blisters must be mentioned. There can be no doubt that, applied to the sacrum, they have been sometimes successful ; and when they do succeed it is at once they do so. In one instance where I gave this plan a trial it did not succeed. This was the case of a robust boy of six years of age. The mother did not wish a second blister to be put on. In another instance, that of a girl of seven years of age, the plan was more successful, as for a period of four months the disease was complet-

stopped, but it then recurred, though at the time I lost sight of the case; for the child's mother was advised to leave the infirmity to itself, being told that when the patient became a woman nature would right itself. It has turned out otherwise however; and, strange to say, it was this past week only that the mother came to me to tell me that, though menstruation has been established, the infirmity has not ceased. The girl is now fifteen years of age. On the whole, the blistering plan is one not to be forgotten; for it is clear that cases will occur where we will be driven to try every resource, and this one amongst the rest. West, in speaking of this plan, says the blisters should be applied again and again. Though I cannot speak against this way of using them from experience, I must say it seems to me if they do not succeed at first they are not likely to do so by repetition.

In any of the works in which this infirmity is spoken of it seems to be taken for granted that tonic medicines are to be used as a matter of course; and the tincture of perchloride of iron has been specially praised. I must say that they have not answered my expectations, and I doubt whether others have found them more beneficial. Some form of the cold douche, however, is a valuable agent; and if the disease be checked, even for a time, this measure will most probably prevent a relapse, which we know is so likely to occur.

Of specific medicines used for this infirmity I need only speak of two. The first is the hydrate of chloral, which has been recommended strongly by some. It has only yet been used by a few, and whether it will in the end prove a useful remedy remains to be seen. In the case alluded to before, where the boy suffered in the day as well as the night, I tried chloral. The patient was brought to the Whitworth Hospital, Drumcondra, but, unfortunately, I lost sight of him after the first week, and so I have no experience to offer on the point. It has been stated, however, that cases have been cured by this medicine; and it is, therefore, worthy of being kept in mind.

The last medicine of which I have to speak here is belladonna, and, with our present knowledge, it is I believe the most effectual means we possess. I need scarcely say that this is a potent drug, and has been proved to be a very valuable remedial agent in some obstinate diseases, such as hooping cough, chorea, &c.; and Rousseau speaks favourably of it in epilepsy. There is one very strange feature about it, as regards children, and that is the little susceptibility they show to its action. It may be considered as established that they bear it very much better than adults; and, when we come to use it, this point must not be forgotten. My own experience bears out this most completely. I have rarely seen the pupils at all affected, and when they were the state passed away very quickly. I may add that, by gradually increasing the dose, I have given very large doses for hooping cough, and the same remark

applies to the disease now under consideration, but the number of the latter has not been at all so numerous as the former. It may be looked on as proved that, with children, the functions, especially those of the kidneys, go on so actively that a poison like belladonna passes away almost as rapidly as it is taken. This reminds one of the analogous fact, which occurs with calomel; for we know that it is scarcely possible to salivate a child.

My own experience of the use of belladonna in incontinence of urine reaches to two cases, which came under my care during the past year. The first was a boy of three and a half-years of age, admitted into the Whitworth Hospital, Drumcondra, under the care of my friend Surgeon Elliot, for one of the forms of club foot. I found he laboured also under incontinence of urine, and wet his bed every night. He was a fat, healthy looking boy, and his appetite good. The urine was not over-acid. He was put on belladonna, in the form of tincture, one drachm to four ounces of water. The dose was a drachm three times a day, and it was increased every third day by one-half. No directions were given about the fluid taken. By the third week the nurse reported the boy better. Some nights passed without the bed being wet, and in five weeks the improvement was quite marked, and it went on till he got or seemed to get quite well. At the end of six weeks, however, there were signs of a relapse, and the belladonna was resumed, but in double the doses which he got at first, having now a knowledge of what he would bear. The disease again yielded, and much sooner than before, and this one case may be looked on as equivalent to two, so marked were the effects of the drug. The boy remains well at present, three months having elapsed since the infirmity ceased.

The second case was that of a boy of ten years of age. Though healthy looking he was thin and tall for his years, and, about one year before I saw him for the incontinence, had had a severe attack of chorea, and with it a strong beat of the heart, and a well-marked soufflet occupying the first sound, and to be heard not only at the apex but strongly marked between the left scapula and the spine. This boy had the infirmity for more than five years. But it was one of those cases to which allusion has been already made, that is, he was much worse at one period than another. His mother had been most assiduous in taking him up at night, but it had not cured the complaint. I advised his getting belladonna in increasing doses, and the tincture was the preparation used. At the end of three weeks improvement was reported, and a week now elapsed without wetting the bed. Unfortunately, circumstances then occurred to interrupt the giving of the medicine, and the ground which had been gained was lost. After an interval the belladonna was resumed, and with precisely the same effect as at first, that is, intervals of a week, or even more, elapsed without wetting the bed. Unfortunately, some illness now broke

out in the family, and again interrupted the use of the medicine, and it has not been resumed since. It is, however, particularly worthy of note, that the boy has not fallen back, as he did on the former occasion; and, though the infirmity is far from being cured, the parents consider him very much better than before the belladonna was given. There can be little doubt, I think, that a longer use of the medicine would, most probably, make a complete cure of this case, and I hope to try it again when a proper opportunity offers.

Such are the remarks I have to offer on the subject before us. I have not thought it necessary to allude to some of the supposed causes of the complaint, mentioned by West and others, such as over acidity of the urine or worms. My reason was that these causes have not come under my notice. Worms are a much more common complaint than incontinence of urine; yet, I have not seen any instance where the two were combined; and again the urine has not been over acid. Children are often sufferers from dysuria and frequency in passing water; but, as far as I have seen, this is a very different affection from the infirmity of which I have been speaking.

In conclusion, I would repeat the four points which, with our present knowledge, seem to me to hold out the best prospect of curing this complaint:—

1. The training the child to retain its water, in the day time, as long as possible.
2. The use of the cold douche.
3. A moderate use of fluids towards night, and a total abstinence from tea.
4. The internal use of belladonna, given in increasing doses, till its specific effects are produced.

DR. DARBY agreed with Dr. Kennedy that incontinence of urine mostly affected boys, and that it generally terminated or was cured about the age of puberty. He was unable to throw any light on the pathology of the disease; but he knew of a case where it had been transmitted through three generations—the grandfather, father, and son. The son was a boy about twelve years of age, and was suffering under this distressing infirmity when Dr. Darby saw him. The father told him that he, himself, had been similarly affected until he reached the age of fifteen, and that his father had told him that he also suffered from incontinence of urine until he had attained the same age. He knew another case in which it was also hereditary. At the time Sir D. Corrigan read his paper on the subject he (Dr. Darby) made a few remarks, and he was then inclined to attribute the infirmity to the want of care on the part of nurses, and giving the child a bad habit. Since then he had made use of the treatment recommended by Sir. D. Corrigan, and it was perfectly successful.

in the six cases in which he tried it; the affection was cured by that means in the course of a week in one case, in a month in another, and in a few months in some. He accounted for it in this way. The sealing up of the prepuce with collodion imposed an impediment to the child passing water unconsciously; he got uneasy and disturbed and woke up, whereupon he made water properly. In one case two applications of the collodion were sufficient to effect a cure, and the child had had no return of the complaint since, and that was six or seven months ago. With a very young child, of course, it might not have the same effect. He had not seen many females with this affection, but he believed it continued in females to a much later period of life than with boys, and in those cases which were hard to cure, he believed blistering was the best mode of treatment. Dr. Kennedy did not allude to treatment by tincture of cantharides. He remembered a case of hooping cough where the parents of the child, instead of going at first to a doctor, consulted a Lady Bountiful, in their neighbourhood, who had a panacea for the disease, consisting of carbonate of potash, cochineal, and large doses of tincture of cantharides. She pressed the cantharides till it produced strangury, and the result was that he was cured of incontinence of urine as well as the hooping cough.

DR. C. F. MOORE doubted the propriety of giving belladonna to children in the large doses mentioned by Dr. Kennedy. He knew a case where a lady gave belladonna, for a length of time, to a child in the hope of keeping away scarlatina, the result being complete loss of sight which was never restored.

DR. DARBY also believed that belladonna was not so harmless as Dr. Kennedy appeared to think. He knew of a case in which it was given as a prophylactic against scarlatina, with the result of causing most intractable indigestion.

DR. CHURCHILL said:—Incontinence of urine is a very obstinate disease, or habit at any rate. In some cases I think it arises, or is kept up by an acid condition of the urine, and I have seen such cases benefited by the administration of alkalies. These cases are the most curable. I have seen it benefited by belladonna, though not in such large doses as Dr. Kennedy recommends. I have also seen it benefited by cold douches at night. I believe the best treatment is watchfulness. I remember asking a wise old man, Dr. Charles Johnson, how he cured cases of this kind, and he said the only way he succeeded was in employing an experienced nurse-tender, and having the child carefully watched all night. There is something very curious in this affection; it may prevail something like an epidemic in a large establishment of boys. I remember it happened (I am not sure, however, that it was not tricks)

when Smithfield Penitentiary was occupied by boys. One or two of the boys had the habit, and they were punished for it. Suddenly every boy in the establishment wet his bed. The physician had an accurate knowledge of human nature, and one morning he brought in with him from his country residence a bunch of nettles, and ordered that every boy who wet his bed should be well whipped with the nettles. One or two, I believe, were so punished, but at all events the epidemic was completely stopped. There is, as Dr. Kennedy says, a marvellous difference between those cases occurring in the day and in the night. A boy can always empty his bladder in the day-time, and will do so, if reasonably well taught. In the night, of course, he is asleep. I took some trouble to find out what time of the night it was in which the incontinence most frequently occurred; whether, when the boy was sound asleep, or in that half state which precedes waking; and in several instances I found it occurred when he was in a deep sleep, but in the majority of cases it occurred shortly before waking. I am not quite sure that it is not connected with dreams of passing water, the child really having a sort of dim consciousness that he was passing it properly. It is probable that some of these cases may arise from want of proper tone of the bladder, and such cases might be benefited by strychnine. I have seen several cases of incontinence of urine in girls. I know one who is now twenty years of age.

DR. KIDD said:—I think one of the methods of treatment Dr. Kennedy alluded to is the most efficacious and rational. I have long practised it. When cases of incontinence come before me, I impress upon the parents and upon the patients themselves, when of an age to understand it, the importance of educating the bladder during the day-time to retain the water. Teach the patients to retain the water as long during the day as possible; and in that way you will accustom the bladder to the irritation of the urine, and, in many cases, I believe, overcome the irritability of the organ which causes the incontinence. On another point referred to by Dr. Kennedy, I do not so fully agree with him, and that is the abstinence from fluids. I think if you make the children abstain from fluids you cause the urine to become more concentrated and more irritating, and you rather increase the tendency to wet the bed. There is another point which should not be overlooked, namely, that sometimes this incontinence of urine is a symptom of epilepsy. I believe that in many cases of epilepsy where the fits occur only in the night, their occurrence is only known by the bed being wet. In many cases I have had my attention directed to that form of epilepsy in which the fits only occur during sleep, by finding that the bed has been wet, and I think that in considering this question, the possible existence of epilepsy is a point that deserves to be borne in mind. Another important matter, with regard

to the treatment, is what is the best kind of bed for the patient. Early in my life I had occasion to watch very closely a case of this kind. The patient was the son of a medical man, and was afterwards a great athlete and the winner of numerous prizes at athletic sports. Up to the age of puberty he was greatly distressed by incontinence of urine. His father tried a great many devices for protecting the bed and making the affliction less disagreeable, and among the rest he tried India-rubber sheeting. I believe that of all the devices that is the worst; the child lies all night in a pool of urine, and you have the skin irritated and the child constantly getting cold. With some of the patients at Lucan we have tried India-rubber sheeting with tubes leading from an opening in the centre into a pan underneath the bed. That is better than the plain sheeting; but as far as my experience goes, the best plan is to put the patient to lie on a bed of good wheaten straw; the water trickles through it at once, and the patient is saved a great deal of discomfort. Within the last few days I have learned that at the asylum in Sligo, where there are many dirty patients in the habit of wetting their beds, they use a canvass bed—simply a stretcher made of some peculiar canvass, manufactured specially for an asylum near Liverpool; this is stretched over two wooden supports, and the patients are put to lie thereon, with two blankets under them folded in the way described by Sir Dominic Corrigan—two blankets doubled and meeting at the hips, so that the upper one is without the range of the wet, and the lower one is easily removed. I am told that they have found that better than straw at the Sligo asylum, but my own experience leads me to think that wheaten straw is the best. There is one other point which I should not omit to notice, and that is the frequent association of this condition with ascarides in the rectum. Some of these cases I have seen benefited by the injection of a solution of common salt into the rectum, which removes the ascarides and allays the irritation. I think the tincture of muriate of iron deserves more credit than it has got from Dr. Kennedy, as a remedy for this affection.

The VICE-PRESIDENT (DR. ATTILLI) said that as the causes of incontinence were numerous the remedies must be numerous also. DR. Churchill had alluded to punishment as a remedy sometimes adopted in these cases. They all were aware that instances occurred of children being punished for incontinence of urine, nothing could be more cruel or injurious than such a course. Very few, indeed, wet their beds intentionally. As to the time at which the urine was voided, no doubt it sometimes occurred during the act of waking, and sometimes in the most profound sleep. This, doubtless, varied with the causes the habit depended on. With respect to this infirmity in girls, he had seen that day an exceedingly handsome girl, of 18, who was afflicted with incontinence of urine at night. She had been treated by some of the best

physicians in this city without a permanent benefit. A remarkable feature of her case was, that when on a visit, she never wets the bed. If she goes to a hotel, or if she is on a visit to friends, five or six nights, at least, will elapse before it occurs, and then the infirmity returns. The explanation of this, probably, was that her sleep was not so sound as when she was in her own bed, or had got accustomed to the bed in her friend's house. He saw this girl, for the first time, last year, and her condition now was considerably improved, inasmuch as she would pass eight or ten days without wetting the bed, but she always did so at the approach of the menstrual period, and, probably, Dr. Kennedy's cure (marriage) would cure her. He thought this was an instance in which the urine was probably voided while in a state of profound sleep. With respect to Sir Dominic Corrigan's method, he had tried it in several cases, but had not had the amount of success which attended Dr. Darby's. He (the Vice-President) would not say, however, that that was always fairly tried. To apply collodion properly the prepuce must be well dried and the collodion coated on carefully and thoroughly, and not one woman in twenty would do this efficiently. Therefore, he was not prepared to say that collodion would prove a failure if applied by one who would take the proper precautions. A short time ago he saw a boy who had incontinence of urine, and a remarkable feature in the case was that when he was taken up at night, if the weather was in the least degree cold, they could not get him to pass any water at all. He would then be put back into bed and in fifteen minutes he would be in a flood. That case gave him an idea, that possibly ice applied to the spine might sometimes prove of use; he had not yet put it into practice, but would do so whenever an opportunity arose. This idea was supported by the observations of Dr. Churchill, that he had seen cold bathing at night do good. In cases where cold had the effect of checking the tendency of the bladder to empty itself, he thought cold applied, in the form of ice bags, to the spine in the course of the night, would have the effect of prolonging the interval, if not of entirely checking the involuntary evacuation of the urine. Dr. Kidd had forestalled him in his observations about the value of straw beds for patients thus afflicted. He had had experience of its benefits and fully concurred in Dr. Kidd's recommendation.

DR. T. MORE MADDEN said that he had published in the present number of the Irish Hospital Gazette some cases of this disease. In the Children's Hospital with which he was connected a good many cases of the kind had occurred lately. They were divisible into two classes, those which were preventable and those which could not be prevented. The former cases were the most numerous. In them it was not a disease but the result of carelessness on the part of the nurses and the children themselves, and could be cured by simple attention to cleanliness. He

remembered hearing Dr. Darby say in the discussion on Sir Dominic Corrigan's paper, that he could prevent the wetting of the bed, in a great number of cases, by punishing the nurses in whose hands the patients were placed, and that was Dr. Madden's experience also. Unfortunately there was a class of cases which went beyond this, and very few persons knew the extent to which this most unpleasant affection prevailed. He had known many cases of its occurrence in adults, and at present he knew two young men, grown up to adult life, still continuing this habit, and rendering their lives perfectly miserable. He agreed with Dr. Kennedy that blistering the sacrum was of advantage, but not for the reason he had assigned. Dr. Kennedy thought it was of no great use to prevent the patient lying on his back; but he (Dr. Madden) thought that a blister on the sacrum would render it uncomfortable to the patient to lie on his back, and in that way alone would do much good. He disapproved of the mechanical treatment which had been suggested. As to the medical treatment, there were two remedies which he had found useful—tincture of perchloride of iron and tincture of belladonna; and though they produced different effects when given separately, he found they acted very well in combination, and he had tried that combination in the Children's Hospital with much advantage. If they blistered the child's sacrum to prevent it lying on the back, put it on tincture of iron and belladonna, and gave no salt in its food, they would have very few cases of incontinence of urine.

MR. F. T. PORTER asked Dr. Kennedy if he had examined the state of the urine in any of the cases which came under his notice. In a very bad case of a boy between eight and ten years of age, he (Mr. Porter) detected phosphates in the urine. He found that the child's brain had been overworked, and on remedying this and giving him tonics and improving his general health the habit disappeared.

DR. SIBTHORPE had a girl of eight years of age who suffered from this infirmity under his care some time ago. The treatment adopted was to give her no drink from the time she got her dinner—not even tea—and the last thing she did at night before going to bed was to pass water. Tinctura lycée was administered, and she got quite well.

DR. KENNEDY, in reply, said he had never heard of the effects of belladonna alluded to by Drs. Moore or Darby, and had seen none of the disagreeable consequences spoken of by Dr. Darby in any of the cases in which he had administered the drug. He was glad to hear that Dr. Darby had had such successful experience of the collodion process, and hoped he would publish the particulars of the six cases in which he had employed that method. With reference to the state of the urine, he had

never tested it further than as regarded acidity, and he had never found any remarkable amount of acidity existing. He should say that in such a stage of life phosphates would be very rarely found to exist. He was aware of the fact alluded to by Dr. Kidd that epileptic patients frequently passed their urine in bed, and that it was often the only proof that they had got a fit in the night. The point was one that ought not to be overlooked, and the greatest watchfulness should be exercised in the case of a child suffering under this infirmity. Tonics in his hands had failed to effect a cure, although the health of the children had improved very much under cod-liver oil and tincture of iron.

A Glance at Preventive Medicine in 1769 and in 1874. By C. F. MOORE,
M.D., Physician to Cork-street Fever Hospital.

In attempting "A Glance at Preventive Medicine in 1769 and in 1874," unforeseen difficulties have arisen. Permit me, therefore, Mr. President and Gentlemen, to ask your indulgence for its many shortcomings.

I will here, by way of preface, dwell for a moment upon the existing state of society and science at or about the first period to be considered.

Commenting upon the times preceding the former date, the author of *A New History of England*^a wrote in 1766 as follows:—

"The powers of the human mind were freely and fully exercised in this period. Considerable progress was made in mathematics and astronomy by divers individuals—among whom we number Newton, Halley, Wallis, Barrow, Flamsteed, Hudson, Sanderson, Bradley, MacLaurin, Smith, and the two Simpsons.

"Natural philosophy became a general study, and the new doctrine of electricity grew into fashion. Different methods were discovered for rendering sea-water potable and sweet, and divers useful hints were communicated to the publick by the learned Doctor Stephen Hale, who directed all his researches and experiments to the benefit of society. The study of alchemy no longer prevailed; but the art of chemistry was perfectly understood, and assiduously applied to the purposes of sophistication."^b

This is not the place to enter into any detail of the long array of celebrated writers that marked the decades embraced in the first period referred to by the historian Mortimer—suffice to say, those were the days of Wm. Congreve, Steele, Farquhar, Addison, Swift, Prior, Crowe, Dryden, Pope, Parnel, Garth, Guy, Young, Thomson, Jno. Locke, Berkley, and many others.

We have more in common with the fact that it was about that time

^a *A New History of England, &c.* By Thomas Mortimer, Esq., &c. London, 1766. Vol. III., pp. 788–793, &c.

^b Meant, I presume, in a good sense, as mixing useful compounds.—(C. F. M.)

"the physician's library was enriched with many useful modern productions; with the works of the classical Freind, the elegant Mead, the accurate Huxham, and the philosophical Pringle. The art of midwifery was elucidated by science, reduced to fixed principles, and almost wholly consigned into the hands of men practitioners. The researches of anatomy were prosecuted to some curious discoveries by the ingenuity and dexterity of a Hunter and a Monro. The numerous hospitals in London (and Mr. Mortimer might have added those also of Dublin) contributed to the improvement of surgery, which was brought to perfection under the auspices of a Cheselden and a Sharpe."

Our own island was not behindhand in progress, for we find that the Royal Hospital had been some time built, and Steevens', Mercer's, St. Patrick's, so well known as Swift's; that for Incurables, then in Fleet-street; Dr. Moss's in Great Britain-street; St. Nicholas', Francis-street, the old Meath Hospital, the Hibernian Hospital in the Park, the Foundling Hospital and Workhouse, the House of Industry, the Bluecoat Hospital, the Royal Dublin Society, the Royal Irish Academy, the Hibernian Marine Society, and other valued and useful institutions, were founded or in working.

Such evidence of care for the sick, for the land and sea services—such energy of character—such literary talent—aye, and such evidence of the power of satire, as was manifest in the works of Hogarth and others who plied pen and pencil, and showed, in other ways, their disapproval of what was wrong, or believed to be so—existed on every side a hundred years ago. Commerce, too, was thriving, as seen in the growth of the Honourable East India Company; enterprise existed with many, not always to repay its possessors, as proved by the South Sea Bubble.

All this time the people of the British Isles maintained, with more or less success and renown, war with many powerful enemies. Solid evidence of successes remains in many of our colonial possessions, and of our reverses, no doubt sent for the best purposes, in the great Republic across the Atlantic.

That science, which is the more immediate object of this notice, might to a great extent be said to have taken a definite form at this period.

It was then that inoculation with the small-pox virus was introduced into these islands, institutions for the aid of soldiers' and sailors' children, for female outcasts, and soon after for venereal cases, were also established.

Wars by land and sea, as well as the enterprise of Captain Cook and other discoverers, led to much knowledge in practical hygiene about the time referred to. It was by these men that scurvy—that scourge of fleets and armies—was first shown to be avoidable.

During the last century many works were published on hygiene at

home and abroad ; some referred to the injurious effects of ladies' stays ; some advocated sobriety, believing, doubtless, with the poet Denham that—

“Mirth makes them not mad,
Nor sobriety sad.”

Invocations to health were published in prose and in verse. The mother, the nurse, the child, were counselled to follow in the footsteps of the goddess, Hygeia.

In 1714 John Bellew wrote “An Essay towards the Improvement of Physic, by which the lives of many thousands may be saved yearly.”

Sir John Floyer wrote in 1725 upon the “Galenic Art of Preserving Old Men's Health.”

Some years earlier an author, John Polus Lecaan, wrote—“Advice to the Gentlemen in the Army in Portugal and Spain.” This was published in London while the British army was engaged in Spain.

In 1722 Dr. John Quincy published the fourth edition of his “Compleat English Dispensatory,” to which he added “An Account of the Common Adulterations, both of *simples* and *compounds*, with some Marks to detect them by.”

Don. Monro, M.D., in 1764, published “An Account of the Diseases of the British Army in Germany, with an Essay on the Means of Preserving the Health of Soldiers.”

The names of John Fothergill, Jno. Armstrong, M. A. Clarke, W. Smith, Hugh Smith, W. Rowley, with very many others at home and abroad, occur about the same time as writers on the subject of hygiene.

W. Rowley wrote, in 1776, on “Medical Advice for the Army and Navy in the American Expedition;” and in the same year Sir John Pringle published his “Discourse on Improvements for Preserving the Health of Mariners.”

Sir John took counsel with Captain Cook, as seen by the Captain's letter^{*} to the baronet when the latter was President of the Royal Society (dated, 5th March, 1776).

It is now several years since the Regius Professor of Physic (Dublin University) drew the attention of my fellow-students and myself at the Meath Hospital, to the great value of Captain Cook's precepts for the preservation of health, as seen by his writings and the effects upon the crews under his command.

During three years and eighteen days but one man of the crew of Captain Cook's ship, the “Resolution,” died of illness, nor was that at all attributed to scurvy.

The Merchant Shipping Act of 1867 is, so to speak, by no means unmindful of the importance of the experience of the celebrated circum-

^{*} Philosophical Transactions, 1776. Vol. LXVI., p. 402.

navigator. It would be well if many of the provisions of the Act just referred to were made compulsory, instead of remaining, as at present, permissive. Most important and valuable enactments are now carried out in regard to the hulls, &c., of ships; what is now necessary to insure safety for property and life is to secure an efficient crew, for which at present the law only provides permissively, except in the matter of prevention of scurvy, which has worked^a so well already. Moreover, the coasting trade, employing fleets of vessels all round the coasts of the United Kingdom, is comparatively exempt from the operation of sanitary law and inspection, and consequently serves but too constantly to convey infectious disease wherever prevalent from port to port. Of this fact the records of every epidemic afford corroboration.

The great necessity existing at the present time for extension of preventive medicine to all classes of merchant seamen is seen by the circumstances represented a short time since by the Social Science Association to the Board of Trade. It was there shown that some 3,000 deaths, partly by disease, and partly by causes (neither sickness nor ship-wreck), occur annually in the service.

Medical registration^b for the one, and legal inquiry for the other, is now called for, and it is to be hoped that success may attend the effort; for it is unnecessary to say how needful, not only in the cause of humanity and legitimate trade such steps are, but also to secure that national independence and safety which so largely, in our case, hangs on our maritime power.

We must not ignore the operation and influence of trade upon the home labour market in respect of the shipping enterprise of the United Kingdom, as well as in other directions.

It is not unlikely that, however it may operate injuriously, as it appears in respect of some points, it has, at the same time, operated beneficially. In opposing what might have otherwise become the domination of the labouring classes in the United Kingdom, events of the past few weeks show a tendency to equalization and to the correction of what a short time ago threatened to become a serious calamity.

It may be mentioned that, connected with this part of the subject, the same guarantees of successful vaccination required in the army and the navy should be legally obligatory on all young persons entering the merchant service. The great success that providentially attended the indefatigable industry of the able medical officers of the ports of London and of Liverpool, in so often securing the prompt isolation and treatment of cholera and small-pox last year, will surely prove an incentive to our

^a Scurvy has been lessened 80 per cent. by the working of the Act of 1867.

^b Registration of death, adopted some 18 years since in the Royal Navy, has been followed by an enormous reduction of mortality. See Lancet, May 2, 1874.

Irish authorities to continue the measures adopted last year, and to extend them where required.

Early in the last century accounts of the small-pox inoculation, as practiced in the East, reached England. The Chinese, indeed, claim to have practiced "sowing" the disease, as they termed it, for centuries, by the *pleasant* expedient of putting some of the crusts into the nostrils, as mentioned by Sir Thomas Watson*. According to the same eminent authority, Dr. Timoni, Dr. Woodward, Mr. Kennedy, M. Pylarini, anticipated Lady Mary Wortley Montague by short periods in the publication in Britain of the process as then practised in Turkey.

I will not detain my indulgent hearers by any long quotation from her great grandson's (Lord Wharncliffe) publication of her letters, but will merely preface her own words, as quoted by Sir Thomas Watson on the matter, by saying that she represents the plague and the inoculated small-pox, then existing in Turkey, as being of a very mild form; indeed, her account would rather lead the reader now-a-days to think that she herself possessed uncommon courage, great strength of mind, and a determination to make the best of everything, especially in her letters to those at home. Under date 1st April, 1718, at Adrianople, Lady Mary Wortley Montague observes:—"The small-pox, so fatal and so general amongst us, is here entirely harmless by the invention of *engrafting*, which is the term they give it. Every year thousands undergo the operation, and the French ambassador says, pleasantly, that they take the small-pox here by way of diversion, as they take the waters in other countries. There is no example of any one who has died in it, and you may believe I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son." Her daughter was the first person in England inoculated with the small-pox.

Several years before inoculation became established in England, Baron Dimsdale, the brothers Sutton, and others, claimed great success and almost perfect safety from the operation.

I have been favoured, by Arthur Haffield, Esq., of this city, with the inspection of a deed of "agreement between Robert Houlton, Master of Arts, late of Knight's Bridge, county Middlesex, but now of Waterford; Samuel Sparrow, late of the Strand, London, but now of Dublin, surgeon; and Charles Blake, late of Bath, but now of Cavan, surgeon, of the one part; and Charles Meares, of Gt. Ship-street, Dublin, gentleman, on the other part, as follows (to wit)," &c., &c. The articles go on to say that these gentlemen, having been "empowered, and duly authorized by the Sutton Family, in Great Britain, to use and practice the art and mystery of inoculation for the small-pox, commonly called the Suttonian method, in the Kingdom of Ireland, with powers to appoint other persons to use

* Watson on the Principles and Practice of Physic. 3rd ed. Vol. II., p. 787.

and practice the said art in Ireland, and other powers as mentioned and contained in certain deeds and articles duly executed to them by Messrs. Sutton," &c., and to appoint Mr. Meares as their "true and lawfull attorney, receiver, and general agent" in Ireland. By an inscription on the back, the document appears to have been signed by Mr. Houlton and Mr. Meares in presence of two witnesses, but only Mr. Meares' signature remains upon it, as a portion of the parchment is apparently cut away. Mr. Meares was to receive, and account for, all "ballances" to the other three persons named above, and to keep in safe custody all medicines or ingredients, nor to allow any to "make any essay, or philosophical or chymical experiment" with the same, except the three gentlemen above mentioned.

Excepting the law of patents, which is, like all human devices, imperfect, we have nothing at the present day like the joint-stock company, described in the deed under consideration, trading, as it did, upon the human live stock of the Green Isle. I have not been able to learn anything about the proceedings of the company, but now mention it in the hope that some of my hearers may be able to give some information upon this part of the matter.

For the sake of the inoculated it is to be hoped the Suttonian method was not like that practised in Turkey, as described by Lady Mary Wortley Montague in the following words :—

" There is a set of old women who make it their business to perform the operation every autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox ; they make parties for the purpose, and when they are met (commonly fifteen or sixteen together), the old woman comes with a nutshellfull of the matter, of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much matter as can lie upon the head of her needle, and after that binds up the little wound with a hollow bit of shell, and in this manner opens four or five veins," &c. " The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have rarely above twenty or thirty in their faces, which never mark, and in ten days time they are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which I don't doubt is a great relief to it. Every year thousands undergo the operation," &c.

It is quite unnecessary to say a word in condemnation of this wholesale scattering of the germs of the most loathsome disorder, as it has so often been called, to which the human race is subject; or to observe

how serious are the objections that modern medicine would raise against the engrafting of so virulent a poison by its insertion into the very veins. We should be thankful that even the improved Suttonian method is now forbidden by stern enactments.

In Ireland an effort is being made by many to carry out sanitary improvements socially, and through the medium of legislative enactments; and it is to be hoped that the latter may be accomplished ere another dread lesson be taught us of our deficiencies, which latter are so patent to all who take the trouble to inquire and learn our great backwardness in these respects.

Although we have not Arab dhows reeking with that most fearful poison, the emanations from ill-treated and often starving human beings who are literally rammed into one mass of seething suffering and disease in a space—as I am told by an eye-witness—worse often than the black-hole of Calcutta, yet we have human beings crowded into small tenements befouled and poisoned with the effluvia of ages.

We need the enforcement of the law, that houses should be habitable, that the contagion of successive generations of fever stricken people should be destroyed with the defiled heaps of rubbish, called houses, that so abound in many of the older parts of our city.

We need protection against the results of ignorance and of habits of want of cleanliness, so common amongst the poor denizens of our courts and lanes. Such people should be taught the consequences of using the same vessels for the removal of everything offensive from their dwellings and for the bringing in of water from the fountains.

Those medical men who are, with the clergy, too often the sole visitors of the poor, can tell the suffering and sickness, and degradation of mind and body, so common among the people of the city alleys and back streets.

It is not to be wondered at that so many are victims of “drink” when the authorities allow such wretched lodgings, and so many cellars and other vile holes, called rooms, to remain. To-day I visited a poor girl in fever, in the Coombe. I inquired the cause of an offensive odour in the house. It proceeded, according to my informant, from a vegetable store under the room where lay the sick girl; indeed, when vegetables get bad, as my guide said, they are most dangerous. Some of the worst cases of rapidly fatal malignant fever that I have seen have come from such places, and it is to me incomprehensible how some gentlemen of the first ability as physicians, at this moment, profess publicly their unbelief in the influence exerted by bad smells* in the production of fevers.

I do not desire to sit in judgment upon any one, much less on those whose knowledge and experience are appreciated wherever science has

* See “Athenaeum,” June 6th, 1874.

penetrated ; but I regret that statements are made, such as these to which I have alluded, by those who probably have never, or not for years, visited the homes of the fever-stricken poor.

The ill effects of such statements is seen in the unbelief evinced by so many of the unprofessional public in sanitary science ; this remark often applies less to the more intelligent of the working classes than to those a little higher up in the social scale.

The old story of the immunity from cholera of men and women employed in the north-east of England in gathering shell-fish on the shore, near the cholera-stricken ports, and of nightmen from fever, forms a strong argument for those who speak of harmlessness of filth. Superior physique, and the beneficial influence of the comparatively diluted emanations encountered by such persons, protect them ; but even these do not always escape. Witness the instantly fatal effect, every now and then, recorded of poisoning by sewer-gases,* and the frequent attacks of a more insidious nature, from which even royalty itself has not been free.

What is it that aids unbelief in such causation of disease ? Too often other contributory influences to which the whole agency is ascribed. Three days since I saw a poor girl—for such, indeed, she was—suffering from all the serious train of symptoms so common in cases of over-nursing ; nor was I much surprised when she told me she had been for the last fourteen months, and still was, nursing her twin offspring. This poor girl presented incipient symptoms of fever. Another poor woman^b now has dry gangrene of the right thumb and index finger, as the sequelæ of deeply maculated typhus. She had furious delirium during the acute febrile stage. This sufferer had nursed one child for several months, and probably would have escaped without loss of health had she not lived in an unhealthy locality. In such cases the illness is too often put down to the fault of the nursing only.

The history of the fever-stricken houses, so familiar to the Dublin City District Medical Officers and to the working Committee of the Sanitary Association, is sufficient to convince the most sceptical.

Year after year wretched tenements in such houses contribute their quota of fever cases to the Dublin Hospitals, whilst they act as centres of contagion to the community, and give a bad name to the whole city.

Here, as I have before done elsewhere, I would draw the attention of the profession to the frequency of cardiac pain in cases of over-nursing and of blood-poisoning, arising, as it seems to me, from one and the same cause, viz. :—the imperfect manner in which vitiated or impoverished blood (controversible terms, as I think) discharges its duty in sustaining life (nourishing the heart itself, as it may be).

* See fatal cases in Liverpool, recorded in the journals two or three years since.

^b This poor woman died 13th June, 1874.

This same day I saw two children (the eldest a girl about nine years) thickly out in measles. She was suffering such agonizing pain of the heart that it rendered her almost insensible. Her condition was but a step removed from starvation ; filth and misery characterized her dwelling—a wretched attic with coved ceiling—the heat of the burning June sun rendering the air of the over-crowded room almost unendurable, albeit the small window and the door were both open.

But I would weary your patience to record the experience of a single day in the life of a Dublin City District Medical Officer. I would add that city authorities should not permit decomposing filth to accumulate in our streets and lanes, and be blown by every blast of wind down our throats.

The Public Health Bill for Ireland contains much that is useful and workable. It has been so well discussed elsewhere that it seems unnecessary here to enter on its consideration. It is to be hoped, however, that certain defects in the English Bill will be avoided in that for Ireland, wherever they occur.

Nor should the miasmata of a thousand manure yards be allowed to befoul the air we breathe, and their offscour the sewers and water-courses and the river of our city.

The heavy mortality showing itself in forms varying with each change of season, proximity to small-pox,* and the revival of cholera on the Continent, should make us ask ourselves—Are we as advanced as we should be in our means of defence against disease and demoralization ? Are we, who have so many advantages over our predecessors of a century since, to wait with arms folded ? Should we not rather prepare for the pestilence that walketh in darkness ?

If we do so energetically we may rest assured of a brighter future for our land ; and, while we should not lose sight of the usefulness of legal enactments for the promotion of hygiene, we must also remember that each person can influence his fellow, and that more will be achieved by kindliness and instruction, as well as by example, than by coercive measures.

The Society then adjourned until next Session.

* Small-pox is at present epidemic in some parts of England and Ireland.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

President—JOHN MOORE, M.D., M.R.C.S.ENG.

Hon. Secretary—H. S. PURDON, M.D., L.R.C.P.

February 26th, 1874.

Notes on several Cases of Cystitis. By BENJAMIN H. SPEDDING, L.R.C.P.
and S., Edin. ; Medical Officer to the Belfast Dispensary.

MR. PRESIDENT AND GENTLEMEN,—I do not pretend to bring anything new or original before you to-night in the treatment of cystitis, but merely to record the result of four cases, all treated upon the same plan, by a remedy which was twenty-nine years ago extolled in the writings of Dr. Robert M'Donnell, of Montreal, in such a manner as to warrant one in giving it a fair trial.

It consists of injecting the bladder with a weak solution of nitrate of silver at short and repeated intervals.

This practice, though possibly known to all of you, is, I venture to state, very rarely adopted, inasmuch as I do not remember any of my professional brethren so treating this disease during my studentship, or since I entered into practice.

The disease is so common that all men who have an extensive field for clinical observation must have noticed how little good effect is produced by the use of various internal remedies which from time to time have been recommended for the cure of sub-acute and chronic inflammation of the bladder. The effect of the use of nitrate of silver injected into the diseased bladder has been so successful in my hands that I think it may be interesting and instructive to read the notes of each case before this Society.

CASE I.—John M'Alister, engine driver, married, aged thirty-two, consulted me on the 20th March, 1873. He stated that about eighteen months previously he commenced to suffer from severe pain in making his water, and being in Edinburgh at the time, became an indoor patient of the Royal Infirmary of that city for a period of six weeks. Here he was treated by internal remedies, and being unimproved, left for Belfast. Shortly after his arrival he consulted me, complaining of frequent desire to micturate, and great pain in doing so, the stream often stopping, and

some blood coming away from the urethra. The symptoms of stone were so strongly marked that I passed the sound three times, with a negative result. Upon his second visit he brought me a specimen of his urine, on allowing which to settle in a test tube it took on a four-fold arrangement, the lowest fourth being blood, next pus, next tenacious mucus, the supernatant fluid being clear urine, having a strong alkaline reaction. I put him on a mixture of nitro-hydrochloric acid, tincture of hyoscyamus, and infusion of buchu, an opiate, and a hot hip bath at bedtime. Continued this for three weeks with no benefit, the urine presenting exactly the same appearance, and being as alkaline, as before. I, then, determined to inject his bladder with a solution of nitrate of silver. I passed a No. 8 elastic catheter, drew off the decomposed urine, and applying a half-ounce glass syringe to its outer end, injected twelve drachms of the solution (which was gr. ii. of the nitrate to a fluid ounce of distilled water). It gave no pain, but felt, as he said, rather warm; he went home, had his usual opiate, ten grains of Dover's powder, and a hot hip bath, and next day reported that he had slept better than he had done for several weeks. He came back every fifth or sixth day, and had altogether nine such injections. Upon each visit he brought me a specimen of the morning urine. The blood disappeared altogether after the second injection, and the mucous and pustular discharge was greatly diminished. At the end of the third week of this treatment he had to rise only twice at night to urinate, whereas he was formerly up every hour. After the ninth week he stated that he felt quite well, and when I examined his urine under the microscope there was not a trace of blood, mucus, pus, or epithelium to be found. In May, 1873, he went to work. I cautioned him against the cold and the abuse of stimulants, to which he had been very partial, and lost sight of him until July, when I received a letter of thanks from him, stating that he was quite well. He was at this time an officer's servant in the South Down Militia, at Newtownards, where he was fortunate enough to escape the usual amount of marching drill, &c., in connexion with the annual training.

I was greatly disappointed when, early in September, 1873, he again applied to me, having, after an interval of three months' apparent cure, had a recurrence of all his symptoms in their most aggravated form. He gave himself up to dissipation after his discharge from the militia, drank whiskey for weeks without intermission, slept out in the cold, and got his bladder into such a state of acute inflammation that I could not again attempt the injection of caustic. Nothing could now check the progress of the disease. Blood, mucus, and pus came away from the urethra, even without making water; he emaciated rapidly, an uncontrollable diarrhoea set in, followed by uræmic symptoms, and he died, I believe, a victim to his own folly, early in December, 1873.

CASE II.—Ellen P., aged twenty, married, mill-worker, consulted me on the 3rd June, 1873. She stated that she had always enjoyed good health until a short time, some four or five weeks, after her marriage. She had then to give up her work as a weaver, owing to a constant burning heat in her private parts, and a frequent desire to make water. Micturition pained her so much that she generally retained her urine for many hours from the dread of undergoing suffering. This state of things had continued for three months, and had been getting gradually worse, when she placed herself under my care. Upon examination per speculum I found the vagina highly inflamed, and the seat of a copious purulent discharge. On introducing the forefinger, and pressing upwards against the bladder, this patient screamed with pain. I drew off some urine for examination; it was normally acid, but upon allowing it to settle in a test tube it was more than one third pure pus. I diagnosed the case to be one of gonorrhœal cystitis, which the unfortunate bride had unconsciously contracted from her husband. I commenced treatment by injecting the bladder twice a week by an ordinary half-ounce glass syringe, with a solution of nitrate of silver, two grains to the ounce of warm distilled water. The first two injections gave a slight burning pain, followed by a desire to urinate, and were only retained a few minutes. The third injection, on the ninth day, gave *no pain*, and was retained altogether. This patient got ten such injections, with about four days' interval, and each specimen of urine which she brought to me contained less and less pus and mucus. She said that she could retain her water much longer, and was able, after the sixth injection, to sleep all night without requiring to urinate. In six weeks she was cured completely of her bladder derangement, but the vaginal discharge continued. This quickly yielded to the frequent use of the syphon syringe and astringent lotions. She has now continued quite well for six months, and has had no return of any bladder symptoms.

CASE III.—Christina D., a healthy married woman, aged thirty-two, and mother of six children, consulted me early in May, 1873. She stated that about twelve months previously she had over-heated herself while on a pleasure excursion to the sea-side, and that she got a chill by sitting on the grass and rocks. A few days afterwards from her account I gathered that she must have had *acute* cystitis, for which she received *no* treatment of any kind for three weeks, when she applied to a medical man, and took several bottles internally, without any benefit. She then tried another physician for a considerable time, and finally came to me, thinking herself incurable. To be brief, I found hers to be a bad case of chronic cystitis, with alkaline urine, containing large quantities of blood, pus, and tenacious mucus, together with phosphatic gravel. She was becoming emaciated from the pain and frequent calls to urinate during

the night. As she had taken so much medicine internally without any benefit, I determined to treat her mainly depending upon the injection of nitrate of silver. I did so just as in the two former cases, and the result was most favourable. In the third week, after six injections, the mucus and pus disappeared, and the blood was only visible when an occasional "attack of gravel" appeared. I then gave her a half-ounce glass syringe, and directed her to inject the bladder with a quarter of a pint of warm water every night, to which was added a tea-spoonful of laudanum. Being an intelligent woman, she did this properly, and after persevering in the treatment for four months, she became perfectly cured, and has remained well ever since.

CASE IV.—E. J., a gentleman, aged thirty, consulted me in June, 1873. He complained of scalding and pain, and frequent micturition, which he attributed to an imperfectly cured gonorrhœa which he had contracted several months previously. The discharge per urethram was little more than an ordinary gleet, but his urine showed chronic inflammation of the bladder, having a considerable deposit of pus and the characteristic tenacious mucus; the microscope revealed epithelium scales in great numbers; reaction slightly alkaline. I tried this patient with nitro-hydrochloric acid and infusion of buchu for one week, without any benefit, the condition of the urine being exactly the same as before its use. I now injected his bladder in precisely the same way as case No. I.—viz., with two ounces of warm distilled water, containing four grains of nitrate of silver, and after the fifth injection had the gratification of finding him quite well, without the use of any internal remedy, save an opiate the night of each injection. It is now six months since the pus and mucus disappeared from his urine, and as I examined it very recently under the microscope, I am in a position to say that he is as well as before the attack commenced.

Remarks.—From the foregoing four cases I have come to the conclusion that we have in nitrate of silver a most potent remedy in the cure of cases of sub-acute and chronic cystitis. The injection causes little, if any, pain, and can be employed in cases of *acid or alkaline* urine. I am also of opinion that gonorrhœa, especially in women of the middle and lower classes, is a much more frequent cause of cystitis than has hitherto been thought.

DR. WALES believed that the nitrate of silver was serviceable in such cases as those described by Dr. Spedding, but he was at a loss to know how that remedy could be beneficial in the case described as being associated with phosphatic deposit in the urine. In cases of gonorrhœal cystitis the treatment recorded would be very useful.

DR. WALTON BROWNE remarked that Mr. Erichsen had mentioned

the use of nitrate of silver in the treatment of cystitis. He had also tried it, and found it useful. Carbolic acid had, in some of his cases in dispensary practice, been serviceable.

DR. CHARLES thought that the best method of washing out the bladder was that described by Bryant. He had injected balsam of copaiva into the bladder in such cases as those recorded.

DR. H. S. PURDON held that for chronic cystitis local treatment was the most important, and also that the urine should not be allowed to accumulate, as in cases where there was enlarged prostate or stricture. Acute cystitis was rare, as an idiopathic affection. He noticed a case, recorded by himself in the *Dublin Medical Journal*, where the disease was cured by the injection of normal urine.

The PRESIDENT believed that cases of cystitis were not very common. The nitrate of silver was an old remedy. The injection of balsam of copaiva, he thought, might give rise to formation of calculus, by some of the balsam remaining in the bladder.

March, 1874.

Cancer of Breast.—DR. FAGAN exhibited a specimen of cancer which he had removed from the breast of a female, aged thirty-two, unmarried. About three months ago the patient first noticed the tumour, and felt pain in the affected part. She exhibited no cancerous diathesis. Some surgeons do not approve of the removal of scirrhus, but Dr. Fagan held that in this case operative interference was not only suitable but necessary, the case being most favourable in all respects for excision. There was only one gland enlarged in the axilla, and that from irritation.

SURGEON GRIBBEN considered it judicious to remove not only the diseased mass, but also any enlarged glands that existed. He had under observation a patient who had been operated on in the General Hospital twelve years ago, and the disease had not returned.

DR. SPEDDING believed that the younger the patient, the more liable she was to an early return of the disease.

DR. M'MURTRY doubted the necessity for operative interference in such cases, and did not see clearly the reason why some surgeons thought it so desirable to operate, as he held that the local cancerous deposit resulted from constitutional conditions which could never, he thought, be removed. After removal of the cancerous mass, other local deposits were very apt to occur.

DR. CHARLES said that if the glands in the axilla were enlarged, they should be removed, and this enlargement was generally due to cancerous

material being carried to them. Many eminent authorities looked on cancer as a local disease, and held that prompt removal was necessary. It is impossible to remove all the enlarged glands, as the lymphatics pass from the axilla to the thorax behind the sternum.

PROFESSOR DILL believed cancer to be a blood disease, which could not be removed. From his own experience he held it to be bad practice to remove a scirrhus breast, as he had generally seen the disease return not only rapidly, but in a more malignant form, and then the disease had no material, so to speak, on which to expend itself. He had seen scirrhus of the breast removed from a female, aged twenty-six, and return inside one year; it was again removed, and she died from the same affection in a year and a half. Two of his own patients who had scirrhus of the breast, which had not been operated on, lived upwards of ten years.

DR. SCOTT asked if any of the members had any experience of condurango given in this disease.

THE PRESIDENT remarked that, from his experience, he undertook no surgical operation with more hesitation than that of the removal of a cancerous breast, owing to the great liability of the disease to return, and he had never met with a case where it did not show itself again.

Tumour Expelled from Uterus.—PROFESSOR DILL exhibited a tumour expelled from the uterus. He said that the patient was aged fifty-six; her catamenia ceased at fifty. Last year she thought that her menstrual periods had recommenced, as the loss occurred monthly, accompanied with pain. The uterus descended so low that it could be seen and felt, and the patient's daughter had often returned it with her finger. He was called in consultation. The patient had lost a good deal of blood, and the haemorrhage still continued. The tumour was at the vulva, and its size, as was apparent to the members, was that of a goose egg, and of the shape of the uterine cavity. Tumours of this kind were usually fatal to the patient, and connected with the uterus. In structure it was musculo-fibrous. The pedicle was only the size of a large blood-vessel.

DR. CHARLES thought that the tumour had originally occurred in the uterine walls, which had given way when the growth had fallen into the cavity, and got moulded to its shape. This would also account for the absence of a pedicle.

On the Use of the Aspirator.—DR. H. S. PURDON said that he had recently read Dr. Dieulafoy's book on the aspiration of fluids, and was much struck with several of the statements contained therein. For instance, that if a congested lung be punctured, the needle may be left *in situ*, and a few drachms of blood abstracted, thus producing a true blood-

letting of the affected organ. Dr. Purdon's experience of the aspirator was very limited, as he had used the instrument only in some eight or nine cases of pleuritic effusion. The patients were all males, and were under treatment in the Belfast General Hospital. In about half the number the effusion was purulent, and in such cases he did not think the aspirator so useful. He punctured near the inferior angle of the scapula. Now, when the trocar and canula were formerly used, we were directed to select a high site—for this reason, that when nature produced a fistulous opening, such a situation was chosen. Two of his cases were complicated with tubercle, in which, of course, the treatment by aspiration was only palliative. In another case the disease was hydro-pneumothorax, and from this patient four pints of clear fluid were drawn off. The amphoric echo was present before tapping, after which operation metallic tinkling occurred. However, as the fluid again accumulated, this disappeared. In this same case no fluid was obtained on the first puncture, which was at the back, and where one would expect the fluid to gravitate to, but it was obtained anteriorly. It is not always possible to draw off all the fluid, as difficulty of breathing, pain in the chest, and troublesome cough occur. In some, bloody expectoration takes place, which is said to indicate puncture of the lung. In patients where the effusion is of small quantity, the fluid may occupy a conical portion of the pleural cavity—near, say, to the axilla, and when both resonance and respiration are wanting. Dr. Purdon next referred to "Damoisseau's curve," which, it is said, tends towards estimating the amount of fluid effused—namely, when the fluid is being absorbed, and reaches a level of seven centimètres above the nipple, the line of dulness is horizontal, and when the effusion is less, the line of dulness is curved, the highest point being at the side, from which it gradually falls as it approaches the median line towards the spine.

PROFESSOR DILL stated that he was satisfied that the aspirator was the most important instrument introduced of late years. He had formed a high estimate of the aspirator, and within the last three months he was sent for in consultation to see a lady residing in the country, who was aged about fifty, suffering from strangulated umbilical hernia. Every effort was made to reduce the rupture, but without success. He thought it a fair case for using the aspirator, which he had sent him from town. The hernia was fully the size of an infant's head. The intestine was filled with air. After using the fine needle and aspirator, immediate relief was afforded, and the tumour collapsed. The patient ever since had done well.

DR. FAGAN had used the aspirator in a great number of cases, but he thought that, like all new instruments, its powers were overrated.

However, he had found it very useful in cases of abscess, when the collection of pus was large, and when it was desirable to draw off the fluid gradually. A child, aged six, was under his care in the Children's Hospital, with hip-joint disease, which had caused a large abscess in front of the thigh, and to open which in the usual way would have been nearly impossible. He used the aspirator daily, and thus removed the pus. In some cases the abscess burst afterwards. He had used the aspirator in a case of effusion into the knee-joint with good results, and the fluid could not be removed by the ordinary methods of treatment. In this case he drew off an ounce of serum, with immediate relief, and the patient recovered well without any one bad symptom.

DR. JAMES MOORE had used the aspirator for abscess in the outer parts of the thigh in a woman, an inmate of the Hospital for the Insane. As the patient was troublesome, he did not like to open it in the usual manner. He drew off 16 ounces of thin pus. He looked on the aspirator as a most valuable instrument.

The PRESIDENT thought that, in introducing the needle, in some cases a little incision through the skin might be useful, as it was not always safe to plunge into an abscess, especially with a large needle. He had tapped a knee-joint with the aspirator. In hernia distended by flatus the small puncture was to be preferred.

Osteo-arthritis.—DR. CHARLES exhibited some interesting recent specimens of this disease. He thought that the name of chronic rheumatic arthritis was bad, as the affection was never attended by any of the complications of rheumatism, such as heart complications, nor was the disease gouty. In some of the specimens of the shoulder-joint which he showed to the members, the head of the humerus was enlarged, and had a porcellaneous deposit. In others the biceps tendon was removed or flattened, whilst in one case there existed also fatty degeneration of the muscles of the thumb and fingers. The cause of dislocation at the shoulder was the removal of the supra-spinatus muscle by absorption. The capsule of the joint then became softened, as also the infra-spinatus, and the remaining muscles drew the bone upwards. The name of osteo-arthritis, Dr. Charles thought, did not bind one to look on the disease as rheumatic or gouty.

DR. WHITLA said that the fatty degeneration of the muscles of the hand observed in one of the specimens might be accounted for by the fact that motion was greatly impaired, and thus the muscles degenerated and atrophied. In this case there was also deposit about the finger-joints.

Calculus Extruded from Bladder.—DR. M'CREA exhibited a cigar-shaped calculus, which had been extruded from the bladder of a female. The calculus was originally about an inch and a half long, and three-eighths of an inch in diameter at its thickest part. The woman had declined to submit to the removal of the calculus. One day she could not "pass water," for which she took gin in repeated doses for two days. At last the force generated dislodged the stone from her urethra. It broke in falling, but the principal portion is one inch long. She had invented the new operation of hydrostatic extrusion.

April, 1874.

Pericarditis.—DR. WHITLA exhibited a beautiful specimen of pericarditis, the whole surface of the heart as well as pericardium being covered by a thick deposit of lymph. There was also congestion of the lungs. He looked on this specimen, which had been taken from a patient under Professor Cuming's care, as an example of idiopathic pericarditis, as there was no rheumatic or syphilitic history or symptoms. The kidneys were also healthy. He intended to send the specimen to the Anatomical Museum of Queen's College, Belfast.

Abscess of Liver.—DR. WHITLA read the following notes:—Mary Bodel, aged thirty-five, married, mother of one child ten years old, was admitted to hospital on Monday, 2nd inst., suffering from typhoid fever. She was conscious and freely told her history. Had been in tolerably good health until seven days before admission, when her husband knocked her down and kicked her; she stayed out all night, and from that time had been complaining, but kept at her usual work for a week, when a very severe pain in the back compelled her to remain in bed; she got worse, and finally presented herself at the hospital, being attended by two physicians, who told her she had fever before seeking admission. She had ceased to menstruate for seven months, having previously menstruated every fourteen days. Before admission some discharge came from the vagina, which, from the description given by the friends, seemed to be muco-pus. She had never suffered from jaundice, or complained of pain over the region of the liver. Never had any symptoms of ulcer of the stomach; no history of old diarrhoea. She had always resided in Ireland. Her friends stated that about one year previously her legs had swelled.

On examination, the skin was hot, tongue furred, head-ache, great pain in the back, sickness of stomach, no appetite, a good deal of thirst, cheeks circumscribed red, and face hectic in appearance, with great prostration, and temperature 103° . No eruption was visible. She had angular curvature of the spine in the upper lumbar region, and marks of old contusions. On percussing chest and abdomen negative results were found. No

tenderness was felt anywhere except over region of uterus. Her most prominent symptom was an agonizing pain in the vagina, which was so distressing as to concentrate all her attention, and her friends believed she had contracted venereal disease from her husband, and attributed all her illness to this; there was no discharge.

March 3rd.—Morning temperature $102\cdot2^{\circ}$; spent a bad night, seemed dull and stupid; the bowels having been up to this time in a fair condition, she was now attacked with diarrhoea, which lasted for two days, but was not very severe. Matter passed away involuntarily, she lay on her back with her knees drawn up, spoke little for hours, and would suddenly start exclaiming that the bed was on fire, and complaining of the pains in the vagina and back.

March 4th.—Morning temperature $101\cdot9^{\circ}$. Had been very restless during the night; kept in the same position during the day; constantly kicking the bed clothes off; and, at 5 p.m., had a smart shivering fit, which lasted about ten minutes; did not speak. Her eyes were filled with mucous deposit; and now and then muttering delirium showed itself, and her pulse was too slow and full for fever. This last group of symptoms looked so like a cerebral case that the physician in charge pronounced it to be a brain affection. Her menstrual flow commenced; she had menstruated eight days before, being the first time for seven months.

March 5th.—Morning temperature $99\cdot9^{\circ}$; much as usual all day; shivering repeated, but not so severe, lasting only a few minutes; no diarrhoea; no tenderness over the abdomen. Though speechless she was evidently conscious.

March 6th.—Morning temperature 100° , evening temperature $102\cdot4^{\circ}$. She remained as on the previous day, half comatose, till the morning of the 8th, when she died.

TEMPERATURES.

	Morning		Evening
March 2nd,	-	—	$103\cdot0^{\circ}$
" 3rd,	-	$102\cdot2^{\circ}$	$102\cdot8^{\circ}$
" 4th,	-	$101\cdot9^{\circ}$	—
" 5th,	-	$99\cdot9^{\circ}$	$101\cdot8^{\circ}$
" 6th,	-	$100\cdot0^{\circ}$	$102\cdot4^{\circ}$
" 7th,	-	—	—

Post-mortem.—No marks on the body; no evidence of suppuration anywhere, old or recent; in pretty fair condition. *Head.*—Membranes seemed somewhat congested; brain quite healthy. Fluid was found in both ventricles to the extent of one-half drachm; it was red and turbid. On microscopic examination it was found to contain many exudation-corpuscules and blood-cells. The folds of the choroid plexus seemed to

be matted together in each cavity. Every part seemed otherwise healthy and free from even congestion. *Chest*.—Lungs perfectly healthy, structure entire, unusually pale. Heart very small in size but healthy; all the valves normal; vessels quite consistent with health; pleura and pericardium normal. *Abdomen*.—On opening this cavity everything seemed right, but on putting the fingers under the liver to tilt up its lower border, they went through into a great bag of pus, from which about three pints of thick creamy laudable pus escaped. The floor of the abscess was formed by a membrane composed of the thickened peritoneum and capsule; its roof by the burrowed out interior surface of the right lobe of the organ. When the purulent matter flowed away, the liver substance appeared like a coarse sponge riddled with cells. No membrane lined the greater abscess, nor was any trace of one found in the numerous recesses forming its roof. On cutting into the organ little of its structure seemed left, it melted down at the gentlest touch, and pus oozed from every incision, except over a space about the size of the clenched fist of the left lobe, which was healthy and about twice as much tissue round this, only a little softened. On the upper surface of the organ the peritoneal covering was much thickened and blended with capsule and pus in quantity bagged between them and the proper liver substance. *Gall-bladder* was filled up by nine calculi, the largest of which was as big as a pigeon's egg; all weighed nearly half an ounce. Thick yellow pasty bile covered over these, and completely occupied the bladder. *Ducts*.—No dilatation of the ducts; no trace of ulceration of the mucous membrane of the gall-bladder or ducts. The ducts were followed to their smallest visible termination, and appeared quite healthy. The biliary ducts were patent. *Adhesions*.—There were no adhesions of the liver to any of the surrounding parts, not even to the diaphragm. *Peritoneum*.—In every place clear and glistening, except over the liver, where it was thickened and matted together with the capsule. *Stomach*.—Apparently quite healthy, no marks. *Intestines* were removed, from stomach to rectum, and examined, but not slit open; they were healthy, no marks of ulcerations or congestion of the patches of Peyer. The rectum contained a quantity of bright yellow feculent matter. *Spleen* quite healthy and of fair size. *Pancreas* normal (rather firm). *Kidneys* apparently healthy, the right one, lying in fossa on right lower lobe of the liver, over the abscess; was quite sound; its capsule firm, no adhesions; their structure was continuous, and no trace of abscess discernible. *Uterus and Ovaries*.—The uterus was congested, its mucous membrane gorged, and a little blood found in its cavity—pointing clearly to death having taken place during a menstrual period. The "os" was patent and admitted the tip of the finger; something like slight ulceration was visible. A polypus hung down from the ceiling of the uterus a little way into its cavity. No purulent matter was visible either in the uterus

or vagina, which latter was a little congested, but otherwise quite healthy. In the left ovary was a series of cysts and small abscesses. The peritoneal covering was thick, and a loop of small intestine was bound to it, also some mesentery. In this matting of the intestine and ovary, traces of adventitious old adhesion bands were seen, placing beyond a doubt the long standing of the disease here. On dissecting the intestine carefully off the ovary, pus, or a fluid undistinguishably like it, oozed out from several little openings. The ovary was as large as a hen's small egg. On cutting, it was seen to contain cysts filled with purulent-looking matter. Right ovary not so much diseased as the left. It contained one large cyst, which dissected cleanly, and contained about 3ii. of thick, pasty, white material, not unlike pus. This cyst appeared to be the ending of the Fallopian tube. Two or three small spherical bodies, as large as peas, turned out on section of both ovaries. They were firm, made up of laminated white structure, which was pearly and glistening, like spermaceti, and peeled into distinct layers like an onion.

On cutting across the veins on each side of the uterus not a drop of pus was found in them. One large vessel coming from the ovaries was filled with firm coagulum of fibrin. Fallopian tubes presented no unusual appearance, being almost impervious to a fine probe. *Urinary bladder*, healthy. *Pott's curvature*.—The abscess of the liver was found to have no connexion whatever with this. The most careful dissection failed to trace anything here but firm bony ankylosis and normal tissue in every sense of the word. No traces of contusions were visible over the region of the liver, no broken ribs or ecchymosis. The contusions on each side of the spine were faintly seen on admission, and nothing but the patient's complaining would have caused them to be observed. All the tissues in their neighbourhood were free from disease or congestion.

DR. WALES said that all the symptoms recorded by Surgeon Whitla, and also the temperature, pointed to the disease as being typhoid fever.

DR. CHARLES thought that a good deal might be said in favour of the abscess being pyæmic, especially as there were no ulcers in the intestines, or, again, the abscess might be idiopathic. An ulcer in the stomach sometimes caused pyæmic abscess of the liver, or the suppuration in the ovary might occasion blood poisoning; the only objection to the latter view being the absence of abscess in the lungs.

DR. H. S. PURDON believed that a very common cause of abscess of the liver was ulceration of the bowels, especially in tropical countries (dysentery being the chief disease), and in which absorption takes place from the ulcers in the colon. The older authors held the opposite view, that the ulceration in the intestines was due to the vitiated bile from

liver disease, and that the reason the colon was chiefly attacked was owing to the faeces being longer retained there.

DR. M'CONNELL said that it should be borne in mind that in pyæmia typhoid symptoms are always present.

THE PRESIDENT remarked that the specimen struck him as a pyæmic abscess, and he believed that pyæmia could occur without a broken surface. The gall-stones showed that there was some previous hepatic mischief.

Pruritus Vulvæ.—DR. H. S. PURDON called attention to the disease known as pruritus vulvæ, or prurigo pudendalis. It was frequently due to irritation arising from uterine or bladder ailments. Sometimes ascarides in the rectum, especially in children, travelled into the vagina, causing the disease; and in such cases the irritation they produced often led to masturbation. Diabetes was another cause, the saccharine urine producing a fungoid growth, shewn by aphthæ, due to the presence of the fungus, the *odium albicans*—the same growth that caused "thrush" in the mouth. In such cases sulphurous acid lotion, carbolic acid, and glycerin, or even borax, were useful. The tearing of the parts by the patient caused excoriations and an eczematous eruption, which had to be treated by nitrate of silver and astringents. Females were said to have miscarried from this form of pruritus. Pruritus of the anus was often associated with pruritus of the vulva, due to the same cause, viz., parasitic growths; the fact that both situations are naturally moist favours a vegetable growth.

Puerperal Convulsions.—DR. WALTON BROWNE brought under the notice of the Society a case of puerperal convulsions that had occurred in his dispensary practice. He believed that the point of interest in the case was that the convulsions, which were more than ordinarily severe, ceased immediately after puncturing the membranes, and allowing the liquor amnii to escape. He had tried various remedies, but they were unsuccessful.

PROFESSOR DILL remarked that bleeding in convulsions had been too much set aside of late years, not only in this affection, but in other diseases. He thought that convulsions were due to one of the following conditions:—1. Hyperæmia; 2. Anæmia; 3. Toxæmia. When the os uteri was rigid, bleeding should be resorted to. Braun, of Vienna, recommends benzoic acid and counter-irritation over the kidneys.

DR. FAGAN thought that the urine should have been examined in the early stage.

SURGEON RANKIN said that treatment directed to the kidneys in the early stage, in the case under notice, would not have been of any service.

DR. CHARLES stated that benzoic acid is converted into hippuric acid, which acts as a diuretic.

Paralysis Agitans.—SURGEON RANKIN brought under the notice of the Society a case of *paralysis agitans*, occurring in a man aged seventy-two, by occupation a carpenter, and which disease he had treated by the hypodermic injection of arsenic. The patient, he said, first came under his care for bronchitis, he then complained of great and increasing tremor in both hands and arms. This lasted for some time. He could not even lift a cup of water to his mouth. Tonics were tried, which improved the general health, but had no effect on the shaking. About this time Mr. Rankin saw a notice in the *Dublin Medical Journal* regarding the hypodermic injection of arsenic in similar cases, and it occurred to him to give that remedy a trial. He made a solution of equal parts of water and the liquor arsenicalis, of which he injected subcutaneously into the neck 5 minims every second day, to commence with. After the third injection the patient was able to lift a tumblerful of water to his mouth, and could close both his hands without tremor. He complained after the second injection of tenderness of the conjunctiva of both eyes, showing that the arsenic was beginning rapidly to take effect. He can now (April) work at his employment. Whether the improvement will remain permanent or not it is difficult at present to say.

DR. CHARLES asked what advantage the hypodermic injection of arsenic had over giving the medicine by the mouth.

DR. H. S. PURDON said that one objection he had to the hypodermic injection of arsenic (which he had tried in psoriasis) was, that it was apt to occasion little superficial abscesses; however, the remedy seemed to act more rapidly when administered subcutaneously. As for it (the Fowler's solution) not disordering the stomach when so given, he believed that if the compound spirit of lavender was left out in its preparation, and ordinary care used in its administration, derangement of the stomach was seldom likely to occur when the remedy was given by the mouth. For neuralgia and tremor, the hypodermic injection of caffeine had succeeded well.

Strages Medicorum ; otherwise Exercise for the Heart. By HENRY
MAC CORMAC, M.D.

"Neque imitare malos medicos qui in alienis morbis profitentur
tenere se medicis scientiam, ipsi se curare non possunt."—CICERO,
Epistola ad Familiares.

THE word heart, at least in the English vernacular, has a two-fold signification, one applying to the physical heart through whose instrumentality the blood is constrained to circulate, the other to the moral heart, "the man within the breast,"—briefly, the sum of human feelings, duties, and affections. As the moral heart dwindles and declines by reason of insufficing scope and effort so, I maintain, does the physical.

I am aware of no treatise, ancient or modern, within the range of medical literature, in which, in short, no writer by whom, exercise as such for the heart has been expressly recommended. And it is only after years of speculation and inquiry, coupled with the opportunities which hospitals and private practice confer, that the extreme, nay, the imperative necessity of exercise for the heart has come to command my most earnest attention. The occasion, however, which perhaps more than anything else elicited this conclusion was the case of a medical man one, indeed, among many, who was an especial sufferer from the heart's irregular and excessive action with, however, entire absence of actual appreciable structural disease. Reflecting earnestly on the matter during the waking hours of the night, all at once it flashed upon my perceptions that the symptoms adverted to were to be ascribed were, in fact, alone ascribable, to simple inadequacy of the heart's action, owing to, and arising from, the insufficiency of general effort, that effort in which the heart, in common with every organ, is bound to take a part, and live.

I am only too well aware of the striving, anxious existence which so many medical men are required to lead. One's sympathies, in truth, are lacerated when one comes to think of those, the many, who within a comparatively recent period, have been snatched away by a condition vaguely termed "disease of the heart," yet not the less one in only too frequent instances, fatal to physician and patient alike. The number of those so cut off, were people only once made sufficiently aware of it, would indeed startle the least reflecting.

It is a common saying, and here at least one apposite enough, that we often cannot see the wood for the trees. For most true, indeed, it is that persons engaged in a daily routine of given action very frequently fail to discern facts which lie, as it were, at their feet, and before their very eyes. It is hard, in truth, to get out of the rut. But why, it may be asked, regard being had to functional irregularity of the heart at least, why should we not endeavour to remedy a state of things so disastrous. It is easy to ask. First, if you care to do so, invite a lawyer to revise

the code; a divine to change his creed. One will, perhaps, reply that the code is perfect; the other, that his creed is not fallible. But the doctors, why the doctors are mainly like the rest of the community, and do not, in general, care for change or inquiry until, at least, they know the reason why. In short, human nature is conservative, and, for the most part, dislikes nothing so much as novelty.

It might be imagined that the heart, in incessant, or nearly incessant action, as it is at all times, was exercised abundantly. But it is really far otherwise, for the ordinary cardiac action is virtually a passive one, needs, in fact, to be supplemented. Increased periodic effort, in reality, is needful, in order effectively to promote the circulation and aeration of the blood. It is also further requisite, in respect of the integrity of the heart's action itself, requisite, in short, to prevent this all important viscus from sinking into languor and relative inaction, as well as to equip it for any sudden encounter or unwonted demand upon its energies. Now, if not entirely unaware, we are too often, at least, almost entirely heedless as to the really pressing necessity there is for vigorous supplemental effort in aid of the ordinarily still and, as contrasted with its requirements, over passive life of the heart.

The malady, then, to which I would here desire especially to advert, if indeed malady it may be termed where structural change is not necessarily present is one, nevertheless, productive of much distress, and very often real danger. Fatty heart, weak heart, feeble heart, flaccid heart, conditions more or less concurrent, name them as you will, conditions attendant on our civilization, so esteemed, do not, however, much trouble navvies, sailors before the mast, common soldiers, or labourers afield. The derangement, as I have said, is for the most part functional, and yet is productive of greater suffering and potential risk than what in many cases attend actual structural cardiac disease itself. In a word, the action of the heart has become enfeebled, its action is no longer normal, but has become shabby and degenerate instead. Women, it is true, at least speaking of more dangerous extremes, are far from being exempt, but the causes or, at least, some of the causes, which conduct to weak heart are, on the whole, less common among them than among men. In any case, whatever may be alleged in respect of the relative liability of the sexes, I have no hesitation in affirming that too long sustained mental effort, coupled with insufficient bodily effort, and, therefore, insufficient heart's action, and inordinate personal indulgence, taken altogether, suffices fully to explain the greatly increased frequency of destructive functional cardiac insufficiency.

The literary classes, lawyers, clergymen, teachers, and others, are very far indeed from being exempt, but medical men, I have arrived at the conclusion, prove especial sufferers, to such an extent, indeed, as fully, I conceive, to justify the heading which I have selected. For a

time, and so long as he remains young and active, trudging about on foot, and obliged to rough it a good deal, the "doctor" gets on well. The heart, like the rest of the economy, is constrained to exert itself, has no time, in short, to relax, and become fat and flabby. By-and-bye, however, the doctor gets into request, is borne about on wheels in his all too comfortably cushioned box, consumes highly azotised fare, drinks a generous glass of wine, but otherwise does no work, at least such work as nature requires and as a medical man, himself a victim, recently wrote to me, "comes to suffer for his sins of omission and commission accordingly."

It is, in fact, impossible, under such circumstances, that the heart should escape. This so important organ, failing adequate muscular effort, like the rest of the body, grows fatty, flabby, faint, and weak, until some day, a greater strain being laid upon its energies than usual, nay, perhaps without any strain at all, it gives up work for ever. Possibly, nay, probably, there was no structural, at least no serious structural change whatever, no regurgitation, no aortic or mitral insufficiency, but, coddled and cockered to excess, the heart pretermitted effort, simply because it was no longer equal to effort. In strictness there was not much to do, but that much it had become unable to perform. Insufficient general action then leads to insufficient cardiac action, and insufficient cardiac action, in its turn and, in the long run, leads to death.

The especial case, one however out of many, already adverted to was that of a physician, who had been engaged in a treatise involving laborious inquiry and protracted research. He rose early, in fact at four in the morn, in order, as he hoped and believed, to gain time, and not to trench upon the daily routine of his professional duties, arranging notes, consulting a multitude of authors for long hours together, and that without partaking of food or refreshment of any kind. Locomotion in the way of his business was performed in a carriage or on horseback. As for foot exercise or other protracted bodily effort, there was little or none of it. The result, after this regimen had been pursued for some time, was the production and progressive increase of faltering in the heart's action. It was not, indeed, severe or distressing at first, but eventually it became both, until at last the anguish proved such as perforce to constrain a complete, or all but complete, abstention from all deak work. There then ensued a partial amendment, but on resuming literary effort the symptoms, as described, recurred, with fresh aggravation and increased persistence. In the street or on the highway, whether walking or riding, they often sufficed to bring the sufferer to a complete standstill, occasionally even the nights were passed without sleep, spent, indeed, in pacing up and down the apartment, or sitting on the bedside until it was time, so far as might be, to resume the business of the day. On one occasion there was a risk of drowning, the heart's

action having become so irregular and distressing, while bathing in deep water, as to render it no longer possible to swim. Happily, the sufferer could float, and with the water awash with his face, he drifted with the tide towards the open sea, until his companions, wakening up at length to some dim perception of danger, put off in a boat, and enabled him to return.

Life, in fact, had grown burthensome, and the patient, doctor though he was, no longer knew exactly what to do. At last a little light became visible amid the darkness, and the first result of this new insight was to discontinue literary work, at least for the nonce, entirely. Relinquishing riding and driving as exclusive modes of conveyance, lengthy walks were taken, the lofty hills were clomb, the sea-shore was frequented, and daily recourse was had to the oar, the dumbbell, the club, and other moderate gymnastic efforts. The sufferer, when in the country, would also descend from the saddle or the driving seat, and run a mile or a couple of miles at a stretch, as the horse trotted slowly along. In other respects, the appetite was left sharpset; the breakfast, however, was abundant, but the dinner was invariably sparing. At first, indeed, all this proved a little difficult, but by degrees nature accommodated herself to every restriction as persevered in, not only for months, but for years. The once so persistent and sadly worrying cardiac irregularity gradually, but completely, ceased, yielding place to a prolonged, and, it is believed and hoped, a lasting immunity. Late or early the labours of the desk are now pursued without a colour of inconvenience. No day, however, is permitted to pass without its complement of bodily effort, and, as for the food restrictions, they have long become habitual. In a word, a most distressing, not to say dangerous, infliction has disappeared, and the whilom sufferer, although no longer what would be esteemed young, goes through an amount of bodily and mental effort not very usual at any period of life.

The weak, the fatty, and the flabby heart, one condition or all, is, indeed, the especial malady of indolent persons. I speak of bodily indolence, in persons of easy circumstances and, commonly at least, it does not assail the hardworking, the abstinent, and the poor. Members of the medical profession, as already stated, so far at least as my observation extends, are peculiar victims. Many, alas, too many, are they beside whose couch I have sat who perished of it, while others there are who, to my cognizance, now labour under it. Writers on diseases of the heart are full of details of structural cardiac disease, while this so serious, because destructive, affection is left, I speak of weak and fatty heart, I do not say entirely, but comparatively, unheeded. One, for example, shall carefully examine a given heart, and discover no aortic or mitral insufficiency, no buzz, no bruit, nothing at least from a stethoscopic point of view, calculated to awaken serious solicitude, and yet the possessor of this heart peradventure shall perish suddenly.

Exercise for the heart, setting forth its absolute indispensability, is the heading of no essay, the title of no book, at least as known to me; nevertheless, there is no subject whatever more deserving of careful consideration and attention. In respect of the treatment, I desire to be explicit. Every species of guarded prolonged muscular effort, as digging, hoeing, rowing, reaping, felling, chopping, ploughing, is useful, but, to those who labour under functional heart affection, walking, though not to excess, not too fast and not unduly far, over hilly unequal surfaces, swinging the arms, unembarrassed by bond or stay, in the open air, is the best of any. An hour before breakfast and an hour before dinner, one or both, are the preferable periods of the day. Exercise develops and strengthens the cardiac muscular fibres, aerates the blood, at the same time fat is sparingly developed, and, coupled otherwise with cautious and abstinent habits, the heart's action becomes reliably even and, without defaillance, equal to all life's proper exigencies.

By this thoughtful, sparing, and cautious regimen, enough of everything and yet not too much, *ne quid nimis*, the heart no longer saddled, swaddled with useless fat, flabby or feeble, will be found, amid all the varying requirements of this complex, often trying existence, to discharge to admiration its daily allotted task. Living too fast, indeed, as some are fond of saying—why, we cannot live too fast, provided only we live nobly and well. An hour, or I shall say two hours, out of the twenty-four, is not too much, is it, to devote to open air life and effort, in order to promote the healthy action of the most vitally essential integer of our wondrous organism, the heart. Yes, indeed, he, *qui ipsi sibi sapiens prodesset non quiet, nequidquam sapit.**

* Cicero, Epistolæ, lib. viii.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

DR. LYONS, President.

DR. BENNETT, Secretary.

Injury of the Hand.—MR. WILLIAM STOKES exhibited the mutilated fragments of what once constituted the right hand of a boy who was then under observation in the Richmond Hospital. The lad, aged sixteen, was employed in attending a hay-chopping machine, his business being to push the hay under the blades of the instrument, which was worked by steam. In doing this the two cog wheels at one side of the machine caught the sleeve of his coat, and forced the fingers in underneath the blades. He was quite unable to withdraw his hand. The extremities of the fingers were removed, but the hand continued to be forced in, and the blades went on chopping until first the phalanges, then the metacarpus, and one row of the carpus were taken off. The boy was then rescued. There was copious hæmorrhage at the time, which continued until the patient was brought to the hospital, and there a tourniquet was applied to the arm, and the hæmorrhage arrested. Mr. Stokes was then sent for, and on arriving determined to operate. The operation consisted in removing the first row of the carpus. He did not wish to go further than that, as he was anxious to preserve the inferior extremities of the radius and ulna, so that the movements of pronation and supination might still be performed. He was doubtful whether he would have a sufficient amount of soft tissue to cover the extremities of the radius and ulna, but he succeeded in getting enough to cover them well. He employed during the operation the bloodless method of Professor Esmarch, of Kiel, that being the second time he had employed it. The operation was perfectly bloodless; not a single drop of blood was lost. He could not but think, from the experience of those two operations, that Esmarch's method was a very great advantage in surgical art. He had never seen an example of this form of mutilation before, and it was extremely rare, if not unique. Since the operation the boy had gone on extremely well.—*January 10, 1874.*

Thoracic and Abdominal Aneurism.—DR. LYONS exhibited the morbid specimens illustrating a very remarkable case of aneurism, which had been under observation for a period of more than a year and a half. The patient was a man aged forty-two, described as a labourer, but occasionally

occupying himself in other pursuits. The history of his disease was as follows:—That on one occasion, when dressing a horse in stable, the animal lashed out from behind and struck him in the middle of the breast bone. He was knocked down partially insensible, but recovered in a short period, and did not immediately complain of any serious distress. In about four months subsequent to this injury (which might be taken as the point of origin of the disease) he noticed a tumour gradually forming, thrusting itself forwards, becoming enlarged to the size of an orange, and in three or four weeks subsequently he sought admission to the Whitworth Hospital. An aneurism of very considerable dimensions was now observed occupying the upper portion of the sternum, manifestly having made its way through the bone, thrusting itself forward, and day by day increasing in size, until eventually it reached the enormous dimensions which were only partially represented in the *post-mortem* appearances now laid before the Society. He suffered from the most aggravated lancinating pains, chiefly referred to the anterior portion of the chest. He made no complaints of pain referable to the back—had not at any time the dull, aching, boring pain usual in such cases (and this was, as will be subsequently seen, a remarkable feature of the case), but complained of severe pains all over the front and upper portion of the chest; he became sleepless and constantly called for relief. Medicines of various kinds were used with variable success—at one time opium was so employed, at another time chloral, and at other times iodide of potassium, digitalis, &c.; the surface was also painted with tincture of aconite. The application of ice over the tumour for a long period gave him considerable relief, and was continued assiduously for over three months. There was during this period a remarkable absence of some of the eccentric phenomena of aneurism. There was, it was true, a large tumour, showing the double impulse and double sound of this form of thoracic aneurism, but at no time any remarkable difference between the radial pulses, nor at any time was there any inequality of pupil. The tumour slowly increased in size, and with the increase the patient's sufferings became more aggravated, and it now became necessary to employ the hypodermic injection of morphia, which might truly be said to have been the means of prolonging the poor man's life for a very considerable period. For seven months, night and morning, half a grain of morphia in solution had to be injected, and it had the effect of giving him, within ten minutes, marked and continuous ease. He fell into a comparatively tranquil state, not sleeping, and showing no evidence of the action of the drug on the pupils, but passing into a quiet tranquil condition, in which his pains were allayed, reduced to almost nothing, and his condition he described as being a very tolerable one. After the lapse of some two months, it became necessary to employ the injection of morphia three times a day, and for the last three months he seemed to

live only by these three daily hypodermic injections. The period of ease after injection commenced at first in ten minutes and it lasted ten hours, and then was reduced to six hours, and he required the attention of the clinical clerks, who certainly paid the most devoted attention to this case, and had undoubtedly assisted to prolong his life, and cause his last days to pass with as much of ease and tranquillity as possible, considering the terrible form of disease under which he suffered. He now began to present great debility, and a new feature was reported. Notwithstanding careful nutrition, and an abundant supply of animal food, wine, and other stimulants, and the use of medicines of every kind, his blood assumed a thin quality, and a marked haemorrhagic tendency began to exhibit itself—so much so that, from the punctures made for the injection of morphia, a considerable amount of haemorrhage occasionally took place, and he began to spit up a fluid more or less coloured with blood, in considerable quantity. It was very remarkable that in an aneurism of such a size as that presented there never was, at any time, any large amount of expectoration of blood or any haemorrhage of any considerable degree. A marked amount of œdema of the right side now became noticeable; his face assumed a bluish and livid tint; and there was also œdema of the arm and neck of the right side. It became evident that he was suffering from a chronic form of pleurisy, and eventually a considerable amount of effusion took place into the left pleural cavity. Pericarditis, with intense *bruit de cuir nerf*, but without pain, was also present for many days. He lingered on, his death being hourly expected, for four months, nothing but the devoted care paid to him keeping him alive. He died without rupture of the sac, and without the occurrence of any additional or any marked symptoms, in a quiet and nearly painless condition in the course of the previous day (23rd January). Dr. Lyons proceeded, with great interest, to make a *post-mortem* examination. The Society saw before them a tumour of very considerable dimensions, but by no means as large as in the condition in which it was presented during life. Owing to the extreme fluidity of the blood, notwithstanding that great care was taken to ligature every vessel of notable dimensions, it was not found possible to keep in the sac the blood which it contained; the blood was in such a diffused condition that it escaped through the minute vessels, and the aneurismal sac was evacuated. Dr. Lyons had endeavoured to reproduce the prominence it presented, before removal, by plugging the tumour with tow. On raising the ribs and sternum, there was found to be a second sac, partly in the cavity of the abdomen. On looking closely into the primary tumour, the point of origin of the original disease was seen, two and a half inches above the orifice of the aorta. At that point they saw the place where the original injury was sustained, causing a rupture of the internal and middle coats, and the gradual formation of a tumour, in the first instance confined to the intra-thoracic

cavity. Lower down there was a sac of great dimensions within the cavity of the thorax, eating its way through the sternum by a tolerably well-defined aperture, an inch and a half in diameter. It made its way to the sternum, and formed the great sac they now saw before them, half the size of a child's head. On examining the right pleural cavity, Dr. Lyons found the right lung compressed by a very considerable effusion of serum, the pleura-costalis and the pleura-pulmonalis being greatly thickened. On looking at the heart, evidence was found of attacks of a sub-acute form of pericarditis, lymphy exudations here and there over the surface, and also spots of a purpuric character on the surface of the pericardium. On passing down the aorta there was found a diseased condition of the vessel till they came to the aortic ring. The valves were not much engaged. This did not complete the whole of the interest of this remarkable case, for now came the curious thing, that there was found a second aneurism, of still larger dimensions, still further down on the traject of the vessel. This, like the other tumour, had been filled with fluid blood, which escaped wholly, and it had to be packed with tow to preserve somewhat of the appearance which it presented when the body was opened. It was situated partly within the left cavity of the thorax and partly within the abdomen; it lay behind the left ala of the diaphragm, thrust itself upwards, encroaching on the left cavity of the thorax, and thrust itself downwards into the left side of the abdomen. It was also found that this aneurism had bored its way backwards, and had eaten through a considerable portion of the substance of the bodies of the three last dorsal and the first two lumbar vertebræ—the inter-articular cartilages escaped to the last. Dr. Lyons frankly confessed that he had no suspicion of the existence of a second aneurism in this situation. The man never made any complaint that he (Dr. Lyons) heard of in reference to the cavity of the abdomen. He certainly made no complaint of pain in the back; and Dr. Lyons was, therefore, surprised to find such an enormous amount of disease existing without any of that dull, boring, aching pain which was generally found when an aneurism pressed on the body of the vertebræ. The case was worthy of notice in a number of points of view. It was remarkable from the disease taking its origin from an injury directly rupturing the aorta, in all probability then in a state of atheromatous degeneration. This supposition was sustained by the fact that a large amount of deposit was found in the vessels running a course towards a calcareous degeneration; and some evidence of calcareous deposit was found in the sigmoid valves; and, no doubt, the force of the horse's foot on the over-distended artery caused the giving way of the vessel. But he (Dr. Lyons) could not understand the occurrence of this second aneurism, unless the patient was under the influence of an aneurismal diathesis. Another remarkable feature in the case was the absence of haemorrhage, and death taking place without rupture of a sac of such

large dimensions. Death was caused by pressure of this enormous mass on the lung and the pulmonary plexus—so that this was a case of death brought about by indirect causes, and not by rupture of the sac. Another remarkable point was the total failure by all means to produce consolidation of the blood by deposit of laminated masses of fibrin. The case was treated in every way to produce consolidation of the blood; he got repeated doses, for considerable periods, of iodide of potassium. He had a great intolerance of that drug, and could not continue it for more than ten days or a fortnight. There was, however, a total absence of any attempt to form a coagulum. There was no clot in the heart, and no attempt at consolidation in either of the two great aneurismal tumours. The absence of coagulum, the tendency to death by interference with respiration, the absence of haemorrhage, the absence of inequality of the pupils, and the marked absence of inequality in the radial pulse, formed remarkable symptoms. The tracings of the pulse which had been taken (exhibited) only showed great but uniform debility of the cardiac impulse. The *post-mortem* examination had been made with extreme care by Mr. Lamprey, Dr. Lyons's clinical clerk, to whom he expressed his obligations.—January 24, 1874.

Calculus Disease of the Urinary Organs.—DR. T. E. LITTLE exhibited the urinary organs which he had removed from the body of an unusually well-nourished and healthy-looking dissecting-room subject, of the age of seventy-five. There was evidence of purulent pyelitis in both kidneys, which differed much however in character and degree of disease on the two sides. On the left, the kidney was enormously dilated into the form of an irregularly-shaped lobulated sac. It was adherent at its upper and posterior surface to the abdominal parietes, and in this situation a small peri-nephritic abscess existed, which communicated with the interior of the gland, by means of a couple of small ulcerated openings. On cutting into the expanded kidney, its contents were found to consist of urine mixed with pus and a single, small, flat, oval-shaped calculus, of yellowish white colour, with rounded edges, and exactly resembling in shape a small pebble off the sea-shore, it lay loose and free in the large cavity. The mucous membrane of the dilated pelvis and infundibula was comparatively healthy and uninflamed, and was not ulcerated in any place, except where a couple of small perforations (already alluded to) existed, connecting their cavity with that of the small peri-nephritic abscess mentioned. The glandular renal tissue was in great part absorbed, but in some places a thin layer of the cortical substance remained, which presented wonderfully healthy appearances, and whose persistence accounted for the presence of urine in the contents of the sac. The ureter, though somewhat narrowed, was perfectly pervious to the bladder. On the right side, the kidney was not enlarged, and was of tolerably

natural shape; it had a few small cysts studding its surface; its pelvis was dilated, and through its walls could be detected the presence of a large calculus. A section of this kidney when made, was found to expose a large branched calculus, which almost completely filled, and was moulded to, the pelvis and infundibula; one of the branches apparently had become detached during life, and articulated with the mass of the calculus by a well marked facet. Several minute calculi—facetted in the manner so commonly met with in cases of multiple gall-stones—were found in the deeper portions of the infundibula. This calculus was of white colour, and rather friable, and glistened on the surface in the light. The small space available around, was full of urine, mucus, and pus. The mucous membrane on this side, was more inflamed than on the other. Notwithstanding this extent of disease, it was remarkable how free from any degenerative process the glandular tissue of the kidney had remained. Except for the slight change of shape produced by the dilatation and filling up of the pelvis and infundibula, the cortex and medulla were quite normal and healthy. The ureter presented nothing unusual. The bladder was found to contain a large oval calculus of white colour, of slightly rough surface, and of moderate hardness. It was brittle, and broke down into several pieces in the process of removing the viscera; the central portions of it were much softer and more friable than the cortex. It contained no central nucleus of a perceptibly different character, or consistence from the rest of the stone. A chemical analysis of a portion of it, yielded the following result:—

Ammonio-magnesian phosphate,	-	-	-	90.50
Tribasic calcium phosphate,	-	-	-	5.15
Lithic acid,	-	-	-	0.80
Potassium and sodium salts,	-	-	-	1.02
Moisture and organic matters,	-	-	-	2.53
				100.00

Thus it may be looked upon as a fairly pure specimen of the triple phosphate calculus. A piece of the branched renal calculus, also submitted to analysis, yielded an almost identical result. The muscular walls of the bladder were somewhat hypertrophied, and the mucous membrane a good deal inflamed, presenting in places numerous small punctiform ulcerations of some depth.

Remarks.—This specimen was remarkable for the extent and generality of the calculous disease found present. This was the more remarkable when taken in connexion with the healthy, and indeed almost robust condition of the body from which the parts were procured; a fact which might be attributed to the immunity from degenerative disease, which—for whatever reason—was enjoyed by the renal glandular tissue. The uniformity of physical characters, and of chemical composition of the

calculi in all the places where they occurred, seemed—in the absence of any local conditions such as commonly give rise to phosphatic concretions—to point to the existence of a special (so-called) phosphatic diathesis in this case. The varieties as to shape found in the calculi here, gave a good illustration of the effect of ordinary mechanical laws, upon the confirmation of these concretions: thus, in the left kidney, where a solitary calculus was subjected to conditions of free and constant movement, in a comparatively large cavity, we had a stone produced of uniform shape, smooth surface, and rounded edges; on the other side we had an immovable stone, moulding itself to the shape of the contracted cavity in which it was fixed, and impressed more or less with the shape of that cavity; and we have further here illustrated the effect of friction within a limited space of several concretions, enjoying a certain amount of motion one upon the other, in the development of facets upon them.—*January 31, 1874.*

Encysted Hydrocele of the Testicle.—DR. WALTER SMITH said the same subject which yielded the specimen just exhibited by Dr. T. E. Little also afforded the specimen he now brought under the notice of the Society—one of encysted hydrocele—which was met with in the course of dissection, in the right testicle. On examining the body an ovoid swelling was noticed, which appeared rather as a marked fulness over the testicle than as a distinct tumour. On cutting down to it, a sac was exposed, about the size and shape of a small hen's egg, and situated on the upper part of the testicle. It was free from the testicle, except in one place; had no connexion with the vas deferens, and the body of the testicle was displaced, so that the globus major of the epididymis lay almost horizontally. He examined the fluid which the sac contained, and found it crowded with spermatozoa. The age of the man was seventy-five. When the fluid was allowed to stand for a time, the sediment consisted entirely of spermatozoa. No cholesterin was observed. It appeared then that the hydrocele had its origin from the globus major of the epididymis.—*January 31, 1874.*

Disease of the Knee-joint: Ulceration of Cartilage.—DR. ROBERT M'DONNELL exhibited a recent specimen of a knee-joint, which he had excised that morning, and which showed in a very perfect way some not very unusual, but exceedingly interesting, conditions connected with the diseases of joints. The history of the case left it doubtful whether the disease began in destruction of the synovial membrane, or in chronic osteitis. It had been very slow in its progress, and was accompanied by osteoscopic pains—pains of fatigue, rather than of acute suffering. An abscess had formed on the inside of the knee-joint, which was of considerable size, and was emptied at one time by the aspirateur. It

filled again, and when the boy was admitted some months ago to Steevens' Hospital there was matter in it. He was a scrofulous boy, with superficial lupus of the face, and under treatment the abscess slowly underwent absorption, and the lupus of the face got well. The specimen was an admirable one of the osteitic conditions on one side, and of great thickening of the synovial membrane on the other.

On the one side the cartilage was gone entirely ; on the other it was thinned away, and it could be raised easily with the finger, as one would peel the skin off a potato. On the other side the cartilage was entirely gone, and the fibrinated edges of the synovial membrane might be seen hanging over it. The bone was quite smooth. Upon the tibial side the cartilage was entirely gone, and the whole of the surface was occupied by granulations which had grown up from the bone. It was not easy to say whether a disease like this had begun as an articular osteitis, or commenced in the synovial membrane ; but there was one very remarkable clinical symptom connected with the case to which he wished to draw attention. Few persons looking at a joint like this would not say that the patient had suffered extreme pain ; yet in fact he had never suffered from painful startings in the limb, or from making such movements as the joint was capable of. Yet they saw the two surfaces that came in contact with each other both entirely devoid of cartilage. As on the surface of the body they found some ulcerations that were exceedingly painful and sensitive, they found the same thing existing in bones. Ulcers resulting from burns, for example, were extremely painful, while on other occasions they would meet with granulations equally florid, but without pain, and over which the finger might be passed without causing uneasiness. The condition of a knee-joint like the present only proved that the same thing which had been observed as to ulceration of the surface likewise applied to the joints. Few persons, he repeated, would look at such a joint who would not think that there were painful startings, and, above all, pain on striking the heel, or making movement of the joint, and yet these symptoms were absolutely wanting. The limb was a useless one. The case never would have gone on to ankylosis, the joint being in an unfavourable condition for it, and it was considered desirable to perform the operation of excision. In doing so he used the elastic bandage of Esmarch with perfect success, almost equalling that which Mr. Thompson had attained in the case which he had recently brought before the Society. He also carried out the carbolic antiseptic treatment with care.—January 31, 1874.

Bronchitis and Emphysema ; Tricuspid Regurgitation.—DR. NIXON exhibited a heart illustrative of the occurrence of tricuspid murmur of dynamic origin. He recently brought before the Society a specimen of a similar nature, and also some cases in which a functional mitral murmur

was developed. In this case a woman, aged about fifty-five, was admitted into hospital, suffering from capillary bronchitis and emphysema. The right side of the heart was dilated, the liver congested, and the kidneys eliminated but a small amount of urine. When these conditions had existed for a time a systolic bellows murmur was heard at the junction of the left fifth costal cartilage with the sternum; it was faintly audible at the ensiform cartilage, and was lost towards the mitral area. Synchronous with the development of the murmur double pulsation was observed in the distended external jugulars. This murmur was looked upon as a functional tricuspid murmur, and as such was frequently demonstrated to the hospital class. The woman gradually sank. Both lungs were emphysematous, and congested at their bases. The bronchi were inflamed, and filled with a reddish and frothy mucus. The liver and spleen were enlarged and congested. The heart was square-shaped, and weighed 15 ozs. The left chambers and the auriculo-ventricular orifice were normal; the mitral valve was unaltered in structure. The aorta was healthy, but apparently somewhat small in calibre. The right ventricle and auricle were manifestly dilated; the walls of the ventricle were considerably hypertrophied. The right auriculo-ventricular orifice admitted with ease the tips of the four fingers and thumb. The curtains of the valves seemed normal. The pulmonary artery presented at its root several patches of atheroma.

Dr. Nixon believed that tricuspid murmurs of dynamic mechanism were most frequently produced in the advanced stages of chronic bronchitis, emphysema, and dilated right heart. The site of the murmur is generally at the fifth left costo-sternal articulation, or in the epigastrium; it becomes lost towards the region of the impulse beat. It is frequently not constant in existence. It is usually soft in character, and varies somewhat in altered positions of the body. It is invariably accompanied by a double pulsation in the external jugulars, the first wave in the vessel being due to the arrested descent of the blood during the time of the auricular contraction; the second, to the regurgitating wave sent into the auricle, and up along the superior cava, during the contraction of the ventricle. This double pulsation is specially noted by Parrot in the *Archives de Médecine*. He, however, holds that all functional murmurs are developed at the right auriculo-ventricular orifice. It is difficult to say why a tricuspid murmur exists in some cases, and is absent in others of an apparently similar nature. Possibly the explanation may be found in the condition of the right ventricle—as to whether it has undergone hypertrophy or atrophy. In the one case its more effective and vigorous contraction may generate a regurgitant murmur, which an attenuated and dilated ventricle is incapable of producing.—January 31, 1874.

Enteric Fever ; Intestinal Haemorrhage.—DR. STOKES.—The parts I exhibit were taken from the body of a man who died lately in the Meath Hospital. The case presents some peculiarities illustrative of the prevailing epidemic type. This patient was a fine looking fat man, and was admitted to hospital on the eighth day of enteric fever. About the first period of his illness, it is to be remarked, that he did not altogether leave his work. It was, what we call in the hospital, a “spoiled case,” or a case “put astray,” for he was first ill, then went back to his work, and then got ill again. This man was occupied in the laboratory of one of the medical halls of this city, and was principally occupied in the manufacture of tinctures. He confessed to us that he had been in the habit of consuming rectified spirits of wine—he did not say to what extent—but, probably, in considerable quantity. Still, he had the art of drinking without getting unfitted for his work; but when he went home he used to become intoxicated. He drank at home, and I believe this was a habit of very long duration. His temperature on the morning of admission was 104·7°; the pulse was 134. He complained of nothing except extreme prostration. He had had no diarrhoea from the time of his illness. The abdomen was flat, and was not painful on pressure. He was not long in bed until he became delirious, and this continued to the end of his life—four days after admission. He remained in the same state with delirium and slight swelling of the belly; but without pain. On February 2nd, he had haemorrhage from the intestines to the amount of half a pint, and again on the morning of the 3rd to the extent of a few ounces. On that morning he presented a remarkably anaemic appearance, so that we might have supposed the man to have lost a great quantity of blood, but he had not. His heart was then weak; his pulse, 160. He was very delirious, and had considerable *subsultus* of the upper extremities. There were two rose-coloured spots on the front of the abdomen; but I did not see others. On the afternoon of the 4th he died; his temperature before death having risen to 106°, and his pulse to 160. The heart was weak and at the same time excited. He slept badly throughout, although he got chloroform draughts. I present the small intestine and part of the colon. The colon was immensely distended with air, and contained a quantity of blood. The vermiform appendix was completely filled with dark blood. Throughout the entire course of the ileum are a great number of follicular ulcerations. The mucous membrane of the colon was deeply tinged with blood. There are a very few slight ulcerations in the colon, but no appearance of abnormal vascularity was observed in it or in the ileum. The question arises was this blood from the ulcerations of the ileum, or was it, as sometimes happens, simply a sanguineous exhalation from the mucous membrane of the colon. In the present state of our knowledge, I would not venture to give an opinion. The haemorrhage by exhalation from the mucous

membrane of the rectum may sometimes be enormous. I have known a case in which a large *pot-de-chambre* was completely filled with blood, and yet no trace of ulceration could be found in the colon. This case illustrates very remarkably the fact which Broussais was the first to announce, long ago, that ulceration of the intestine may take place without pain. The old description of inflammation, as consisting of *dolor*, *calor*, *tumor*, and *rubor*, is not applicable in this case; and this was one of the great points on which Broussais relied. On the other hand, it may be a question whether the absence of pain and of tenderness in this case was not due to the internal loss of blood. We know very well that in other diseases haemorrhage greatly masks the ordinary symptoms. This is remarkable, even in cases of pulmonary tubercle; where repeated and copious haemorrhages occur, the symptoms and physical signs are greatly masked—they may be said for a time to be absent, in consequence of the loss of blood. The case is interesting as illustrating the present constitution of the epidemic, at all events; and also as illustrating the fact that there may be very abundant haemorrhage in the ileum, without pain or tenderness, or anything that would lead one to suspect the existence of mischief in the intestine. There were, in fact, only two points in the case to attract attention—one that the patient had haemorrhage, the other that he had symptoms of typhoid fever.—*February 7, 1874.*

Enteric Fever, fatal by Haemorrhage.—DR. HAYDEN said the specimen he was about to exhibit, had a remarkable interest after the communication just made by Dr. Stokes. It was an example of death by haemorrhage in typhoid fever, on the 13th day, without ulceration of the bowels, in fact a copious haemorrhagic flux from the bowel, without a breach of mucous surface, as far as he could ascertain. The patient was a cabinet-maker, aged twenty-five, of temperate habits, and in good health, except in so far as he was then the subject of typhoid fever. He was admitted into the Mater Misericordiae Hospital under Dr. Hayden's care, on the 2nd of February, and the tenth day of his illness. His condition was that presented by an ordinary case of enteric fever. He had a copious eruption of rose-coloured spots, especially on the trunk. He had diarrhoea, not very urgent, however—not more than three stools in the twenty-four hours. There was slight ileo-cæcal tenderness, and the tongue presented the ordinary characteristics—moist, with a red margin, and furred centre—he was slightly incoherent. When admitted on Monday, his temperature in the evening was 102°, and the pulse 112. On Tuesday, his temperature was 102°, pulse 108; and in the evening, temperature 102°, pulse 106. On Wednesday morning, the temperature was 101°, the pulse 98, and in the evening, the temperature was 103°, pulse 116. On Thursday morning, the temperature was 101°, and the pulse 104. At 3 o'clock on the afternoon of Thursday, the 13th day of his illness, with-

out any previous warning whatever, without any apparent deterioration in his condition, without any complaint of pain, haemorrhage suddenly set in—first as a slight weeping of blood from the bowel. He became somewhat depressed. The haemorrhage was arrested for a short time, but it returned, and was so copious, that it dropped through the bed and spread over the floor. The loss of blood could not have been less than from three to four pints. The man became collapsed, his temperature sank, the pulse became exceedingly rapid, and he died at 8 o'clock that evening. An examination was made under his direction, by his resident Mr. Alexander Dempsey, with very great care. Dr. Hayden was quite prepared to find ulceration of the small intestine, but there was nothing of the kind, beyond a slight superficial erosion of about two lines in diameter, and without vascular injection or blood stain, at the lower end of the ileum. In addition to the slight erosion just mentioned, only one of the Peyer's patches presented typhoid deposit, and that in an early stage, and without ulceration. The mucous lining of this portion of the canal was free from vascularity and blood-stain throughout, with the exception of slight hyperæmia of the ileac surface of the valve. The large intestine contained at least a pound of clotted blood, and on washing it out, the entire mucous tract from the ileo-caecal valve to the anus, presented a deep crimson tint. The solitary glands were perceptible, but presented nothing remarkable. No ulceration whatever was to be discovered, and no source of haemorrhage, except the capillary engorgement of the mucous surface of the large intestine. What is remarkable about the case is that there was no warning haemorrhage—no trickling of blood in the first instance, premonitory of the fatal discharge. It appeared to be a sudden efflux of blood, by exhalation from the large intestine, causing fatal collapse.—*February 7, 1874.*

Morbid Anatomy of Scarlet Fever.—DR. A. W. FOOT exhibited specimens, illustrative of the morbid anatomy of scarlet fever, taken from the body of a boy, aged twelve, who had died on the fourth day; and from that of another, aged seven, who had died on the third day of illness. The elder boy had early and severe throat symptoms, commencing simultaneously with the initial rigors; the eruption was copious and dark coloured; profuse pharyngeal catarrh with immense swelling of the tonsils and adjacent parts greatly impeded respiration; œdematosus pulmonary râles supervened; the temperature rose to $105^{\circ}7$; and he died in a semi-comatose, lethargic condition, without any struggle. The younger boy presented no specific cutaneous manifestation of the disease, but there was a purplish hyperæmia of the skin; his morning temperature on the third day was $106^{\circ}4$ F.; convulsions came on early on this day, and continued, with very short intermissions, for about seven hours, when he died. In both cases the solitary follicles were universally

enlarged throughout the small intestines, but especially in the first and last portions of the bowel, and the tumefaction of the mesenteric glands corresponded in degree to the local manifestations of disease in the solitary follicles. The agminated follicles were morbidly prominent and distinct. The tongue, pharynx, etc., of the elder boy were exhibited. The tonsils were seen in a condition of necrosis; numerous frayed rents on the internal aspect of their investments led into irregular excavations containing masses of dead tissue in the form of shreddy sloughs. In neither of the cases were the renal organs abnormal in size or weight, and their vascularity was but slightly increased. Those of the elder boy were of average weight; the right was $3\frac{1}{4}$ inches long by $2\frac{1}{4}$ inches broad, the left $3\frac{1}{2}$ inches long by $2\frac{1}{2}$ inches wide. The capsules proper peeled off with ease, except in one or two places where they dipped into fissures due to congenital lobulation, their colour was a rich mahogany brown; there was no sanguineous drip from them; on section, the mucous membrane of the pelvis was uncongested. Fresh sections showed unusual proliferation of the glandular epithelium. The kidneys of the younger boy weighed together $8\frac{1}{2}$ oz.: and in internal and external appearances were similar to those of the other case. The liver of the boy aged twelve weighed $36\frac{1}{2}$ oz., the convex portion of the right lobe was adherent for a considerable extent to the diaphragm, the gall bladder, grass-green in colour, contained 7 drachms of a syrupy, greenish-brown bile; no calculi. The soft, violet-grey spleen weighed $3\frac{1}{2}$ oz. The brain, weighing $52\frac{1}{2}$ oz., exhibited considerable fulness of its venous system, but no other anomaly was observed in its dissection. The brain of the younger boy who had suffered from convulsions, was remarkably anaemic, internally as well as externally; no evidence of any inflammatory or tubercular irritation of the membranes could be anywhere discovered; there was a small amount of ventricular effusion, and a limited central softening in the fornix—it weighed 46 oz. His liver weighed $24\frac{1}{2}$ oz., and was of a rich reddish-brown colour, the grass-green gall bladder contained 7 drachms of thin, light olive-brown, syrupy bile; no calculi. The firm, purplish-red spleen weighed $4\frac{1}{2}$ oz. The heart, empty of clots, weighed 3 oz. The enlargement of the solitary follicles and of the mesenteric glands was less conspicuous in the younger boy than in the elder one. Dr. Foot considered that the profuse and widely disseminated affection of the lymphatic glands in both these cases—which had died so quickly from different effects of the scarlatina poison—tended to show the propriety of the pathological name suggested by Dr. Harley for scarlet fever of “febris lymphatica.” The remarkable amount of anatomical change in the intestines after death, at such early stages of the disease, also suggested the question, whether much of it had not occurred before the period of invasion.—*February 7, 1874.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. III.—*Two Cases of Ovariotomy, whereof one recovered; to which are appended Statistical Records of this Operation in Ireland.* By MR. E. STAMER O'GRADY, M.R.I.A., Ch.M., M.B., A.B., Univ. Dub.; Fellow and Member of the Surgical Court of Examiners, R.C.S.; Surgeon to Mercer's Hospital, &c.

CASE I.—Mary Anne B. (No. 1,171) was admitted to Mercer's Hospital on October 1st, 1872. She had noticed her abdomen swelling for some six or seven months, but had not observed on which side the enlargement began. Of late the disease was obviously progressing at a more rapid rate than during its earlier stages. In midsummer she had been an inmate of the hospital for some weeks; declining operation, had left the house, and in the interim, prior to her re-admission, had been in other institutions. She now came back to Mercer's, anxiously soliciting operation.

The patient, thirty-six years of age, a sempstress by trade and unmarried, was a spent and emaciated creature, her general health quite broken down, and altogether much enfeebled and debilitated. The abdomen measured $39\frac{1}{2}$ inches in girth, from the umbilicus to the centre of the right and left groins respectively 10 and $10\frac{1}{2}$ inches, and to the ensiform cartilage $9\frac{1}{2}$ inches. On attempting to rise from the recumbent position but little increased prominence between the "recti" occurred; the lumbar areas of resonance did

not vary when tested by changes of position; the abdominal parietes could not be raised off, nor did they on deep inspiration seem to move over the tumour. On palpation a distinct creaking sensation was to be felt in front at the upper and left side over an extended surface, so that the apprehension of adhesions—it might be of considerable extent, at all events anteriorly—being present was formed. There was obvious fluctuation throughout, the indications conveyed by the use of the uterine sound were normal, and the renal functions healthy. The patient was placed on a general tonic line of treatment, an occasional aperient being also required. For some time prior to the operation she took the mixture of tartarated iron and chloric ether in combination with the carbonate of lithia and bicarbonates of soda and potash, as recommended by Mr. Wells at page 323 of his most exhaustive and instructive work, which, abounding, as it does, in practical details and suggestions, is invaluable to the surgeon who ventures on the treatment of abdominal tumours. The day before the operation the bowels were gently acted on. The pulse usually ranged from 92 to 96, and though full, it had but little strength.

October 21st.—At 8 a.m. a light breakfast of toast and beef-tea was given, the lower bowel having been previously cleared by a warm water enema. An egg beaten up with brandy was given at 10 o'clock. A little more brandy was also administered at 11·30, when the patient, who had been clothed in the flannel suit customary on such occasions, was about to be placed under the influence of chloroform. The anaesthetic was given by Dr. Mason in a small ward opening immediately opposite one of the doors of the operation theatre, into which the patient was promptly carried when sufficiently narcotised. The fenestrated caoutchouc sheet having been applied, an incision was begun below the umbilicus, and carried downwards along the middle line for about five inches, dividing skin and superficial fascia. The abdominal parietes were very attenuated, and each successive layer was divided with the utmost caution on a broad flat director to the extent of the original incision, along the line of which, too, there were extensive venous inoculations. These were, of course, avoided as far as practicable, but here and there were of necessity divided. The haemorrhage therefrom gave no annoyance, ceasing spontaneously.

When the cyst was reached was by no means a simple matter to determine, as it was so adherent all around the line of incision that even a sound could not be introduced along its surface

anywhere into the general peritoneal sac. Fortunately the adhesions, which were almost universal, of the anterior surface of the tumour to the abdominal parietes were not very firm, and they gave way to the employment of moderate manual force, the peritoneal surface, as exposed, being intensely red, and studded thickly over with beads of soft lymph. On introduction of the full-sized trocar, deep straw-coloured fluid not only flowed through it and the attached tubing, but the cyst split up and down, a great part of its contents gushing violently alongside the instrument, and, in spite of every effort to avoid it, a quantity thereof getting into the abdominal and pelvic cavities. When the cyst had become sufficiently collapsed, it was securely fixed by the lateral teeth to the sides of the canula, and by steady traction gradually drawn out, the hand being now and then obliged to be introduced to break down superior and posterior adhesions. The deeper part of the tumour was comparatively hard and solid; to enable it to be extracted the incision had to be prolonged, by means of a strong pair of scissors, upwards, and to the left of the umbilicus.

The pedicle was but moderately thick, and sufficiently long to admit of its being secured by the clamp; then the diseased mass was cut away from it. The uterus and left ovary proved on examination to be healthy. Omentum, but no intestine, protruded. Such portions, visceral or parietal, of the peritoneum as were seen were evidently in a condition of inflammation, and covered more or less thickly with recent lymphy deposit. The pelvis was sponged out, a warm soft sponge was placed over the viscera, and eight sutures of carbolised catgut were inserted, each thread being doubled, and bearing a strong straight needle at either end, so as to allow of both extremities of the suture being introduced from the peritoneal aspect, a strip nearly half an inch broad and equal to the length of the wound being taken up on each side. After all the sutures were in situation, and before they were tied, the sponge, which had received any drops of blood caused by the passing of the suture, was removed, and the stitches were then secured by the ordinary reef knot, the pedicle being left below the lowest suture, at the inferior angle of the cut. The waterproof sheet was then removed, and the abdomen well supported by broad straps of adhesive plaster. To prevent the possibility of its slipping two hare-lip pins were also passed through the pedicle and the face of the clamp, and the cut surface of the pedicle well touched over with the solid perchloride of iron. Warmed French wadding was placed

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over the surface of the abdomen, and all well secured by a four-tailed flannel bandage. The patient was returned to the room off the operation theatre, placed in a well-heated bed ready for her reception, and 45 drops of tincture of opium, with some whiskey, were thrown up the rectum.

The operation was performed under the full influence of chloroform, given by Dr. Mason, and which, though there was some slight sickness, acted well. The pulse scarcely changed during the entire time. My other colleagues, Messrs. Ledwich, Morgan, and M'Dowell, also kindly assisted me at the operation, as likewise did Dr. Kidd, to whose experience and advice in connexion with this and other cases I have on various occasions been much indebted. The fluid contents of the large cyst measured about 20 pints, and the more solid part of the tumour weighed 8½ pounds; on the inner surface of the large cyst were extensive brown patches, corresponding to where the adhesions had been densest; the other cysts, varying in size from that of a pea to an orange, were filled with contents of very dissimilar appearances. Some enclosed a dark thick fluid, others a jelly-like matter, whilst the majority were distended with the whitish and starch-like fluid so frequently found in these growths. Two small cysts had sanguineous contents.

Soon after the patient had been put to bed she vomited, the sickness, however, being but slight and transient, apparently not interfering with her steady rally. One hour and a-half after the operation there was pain and restlessness, which were relieved by thirty-five drops of laudanum, with an egg and whiskey, thrown up the rectum. At 5 p.m. a pint of urine was drawn off, the stomach had remained quiet, iced brandy and Battley being retained. She now became more settled, having between this and 11 o'clock some hours' sleep at intervals, taking one grain of opium in pill every second hour, feels better and refreshed; stomach quite settled; pulse 102. More than a pint of healthy urine drawn off, and an enema, containing five grains quinine, twenty drops Battley, an egg, and beef-tea thrown up.

22nd.—Passed an easy night, dosing a good deal; pulse 104; tongue clean and moist. Is free from pain, but very weak and prostrate, requiring iced brandy to be frequently administered, and also, at intervals, the enema as above. Urine has been freely secreted. The skin is soft and moist. Complains of feeling of distension in the belly. To get one grain each of quinine and carbonate of soda, with half a grain of opium, in pill, every third

hour; also iced champagne, of which she took a small bottle through the day; and also, by her own desire, a little chicken broth and arrow-root. Towards evening the annoyance from tympany increased, only partial relief being obtained, when some of the gas found vent every now and then by the mouth. This condition seemed to be ameliorated by one drachm doses of liq. bismuth.

23rd.—During the early part of the previous night she slept fairly well, but towards morning became restless, and got very low and feeble—still, however, putting on, as it were, new spurts of life each time the stimulo-nutritive enema was used. The stomach has been sick, discharging a large quantity of yellow bilious vomit. Evacuations of similar character taking place “per anum” also, large quantities of “wind” being expelled with each discharge. Iced brandy given frequently in small quantities with obvious benefit. At morning visit the pulse was 122; the state of the skin and tongue favourable. The flannel bandage was opened, and the pads of wadding raised; a considerable portion of the wound seems united; no tenderness; no tension on the sutures; the dressings in part damp and sullied by discharge; the soiled centres of the adhesive straps were cut off and removed, leaving the unsoiled ends of the old ones undisturbed, and over these were then applied fresh straps of plaster. The two hare-lip pins, which had been passed through the pedicle in front of the clamp, were also taken away. The dressings having been re-adjusted, an enema, as before, was given, and the patient ordered to get one drop of prussic acid, with ten grains of chloral, in solution, every third hour, and to continue the use of the liq. bismuthi as necessary. During the day the stomach settled considerably, and some strong beef essence (acidulated with a few drops of muriatic acid) was taken, as also, when thirsty, a little milk and soda water. In the evening she was improved and stronger, feeling better, and sleeping soundly, the pulse being 116.

24th.—This and the subsequent day were passed in a state of great peril. The night of the 23rd–24th was a good one. Flatulence was passed freely per ovum. When dressing the wound some discharge at the pedicle was wiped off. The integument around it and alongside the edges of the cut, was painted with a combination of equal parts of glycerine and carbolic acid. A mixture, consisting of dilute nitro-muriatic acid and quinine in water, was ordered. All seemed to go on well. However, shortly before noon the patient became suddenly collapsed, but was

aroused by a whiskey enema promptly given by the excellent nurse (Graham), who had charge of her. Brandy also was given by the mouth at short intervals. The patient responded to the continued stimulation, towards evening partook of food, and seemed to have rallied from the forenoon depression. About midnight she again failed, and at 1 a.m. on the 25th I was sent for, on account of violent delirium having suddenly supervened. She was apparently in much pain. A free dose of Battley, with liquor bismuthi and tincture of ginger, was given, and followed by considerable improvement, which was, however, only temporary, for at 4 a.m. she was very feeble. As the morning wore on she had some disturbed slumbers, but did not seem to amend, and at 10 a.m., though stimulants had been frequently given both by mouth and rectum (hot jars being the while kept applied to the feet and arm-pits), she was in a terribly low and collapsed state. Throughout the attack the pulse had been 120-108, urine had continued to be freely secreted, the skin being soft and moist. Brandy was ordered still to be continued every half hour, and opium and capsicum in pill to be given every second hour. Soon after leaving her room I was recalled, in consequence of a "fainting fit," and no whiskey being there at the moment, the suction tube of an enema apparatus was let down the neck of a bottle of champagne, and the contents rapidly injected. This was followed by immediate rally and return to consciousness. Improvement continued progressively, the pulse in the evening being 102, and the amendment decided, the patient feeling well and speaking cheerfully.

From accurate notes of the case, which were continued to be carefully taken at short intervals, it may be briefly stated here that henceforward, though the improvement was very slow indeed, convalescence progressed steadily—now and then much inconvenience being occasioned by flatulence, and, as a rule, best relieved by passing a tube into the rectum. The dressings were continued as before, as also the enemata, which were required till the 28th, on which day she took, by desire, a little chicken. On the 31st the clamp came away. The pulse now was 90, and the general health improved, though the patient was still very weak and debilitated. A bed-sore, in spite of every care, had formed over the sacrum, to which carrot poultice was applied. On November the 2nd the accumulated layers of adhesive plaster were removed, the cat-gut sutures had disappeared, and the wound had nearly healed, even over the pedicle, being a mere

linear ulcer. When the slough of the bed-sore separated, the remaining ulcer and that on the abdomen slowly, as it were capriciously, cicatrized. Throughout the abdomen continued to be carefully supported by broad straps of adhesive plaster. The stump of the pedicle retracted, and the hollow thereby formed gradually filled up. On the 24th of November the patient was allowed to sit up—the entire wound now being finally healed. She still, however, remained weak and feeble, and (in part, doubtless, on account of the season) it was not till the end of December that it was deemed prudent to let her out in the open air. Improvement now went on apace, and by the middle of January, 1873, she was able to leave the hospital.

The general condition of the woman, and the presence of bed-sores, for a long time made the frequent dressings an onerous and fatiguing duty, in which I was regularly and cheerfully assisted by Mr. Samuel Mason (then one of the resident pupils) and other students at the time attending Mercer's Hospital. To the constant care bestowed on her by these gentlemen the final recovery was no doubt in great part due.

This patient regained as perfect health as she had ever enjoyed before her illness, and now (June, 1874) seems to be and considers herself perfectly well and strong. The catamenia, she informs me, are regular. The cicatrix has much contracted, so as not to measure more than four inches—about half its original length.

CASE II.—Martha G. (No. 1556), aged thirty-six, but older looking, being much spent and emaciated by prolonged disease and suffering, was admitted to Mercer's Hospital on April 9th, 1874. I am indebted for this case to the courtesy of Dr. Johnston, now of Maguire's-bridge, Co. Fermanagh, who was in town when the former patient was operated on, and, knowing the interest I had taken in the case, very kindly sent me this one. She stated that swelling had first been observed by her in midsummer, 1871. The catamenia were regular till November, 1872. She was then an inmate of another hospital, during her stay in which she had a severe attack of peritonitis; recovery, therefore, was slow and tedious. In May, 1873, still whilst in the same hospital, she was tapped below the umbilicus, the scar of the puncture being at the present time almost invisible. The catamenia returned in two months, and continued fairly regular till the February before her admission to Mercer's Hospital. Unfortunately, no satisfactory

account as to the effect of the tapping could be obtained. She has been steadily filling since. Much distress is caused by constant sickness of stomach and by painful hot flushing of the face in the afternoon. There is no urinary trouble. On digital examination the uterus was found to be drawn upwards and forwards, the sound showing the length of the cavity to be normal. The point of the instrument can be felt through the abdominal wall above the pubis, and to the right of the middle line. The limit of resonance pushed far back and not varying in any way as the patient changed her position. Examination showed the thoracic viscera to be fairly healthy. In spite of every effort at support, dietetic and medicinal, she grew weaker day by day, and anxiously desired to have the effort made by operation to afford relief. This, unavoidably, had to be postponed for some days; in consideration of possibly immediate danger, it was determined to await the coming to town of a near relative. The history of the case and the results of physical examination made only too probable the presence of extensive adhesions. The measurements were—46 inches in circumference; ensiform cartilage to pubis, 19 $\frac{1}{2}$; umbilicus, to right and left groins, 9 $\frac{1}{2}$ and 10 inches respectively.

April 23rd.—Preliminaries having been followed out much as in the first case, save that a large isolated, newly-cleaned, and lime-washed ward, being on this occasion procurable for the special use of the patient, the operation was performed in it instead of in the theatre. An incision, commencing a little below the umbilicus, and five inches long, was made in the middle line, each successive layer of tissue was then carefully divided, as far as possible avoiding the veins, on a broad, flat director; one vessel required ligature. When what was believed to be the surface of the cyst was reached, it was seen to be intimately adherent all around, whereupon the incision was prolonged upwards for another three inches, and then a steel retractor, with expanded head, could be passed in along the surface of the tumour, and moved about its summit in all directions, showing that the extremity of the instrument was free in the peritoneal space. The separation of the cyst was proceeded with, and proved a matter of difficulty. When its anterior surface was freed, the canula was introduced. The moment the instrument pierced the cyst, it rent up and down, and the contents thereof in part gushed out over the waterproof sheet and in part flowed through the tubing into the bucket. The amount then saved, and subsequently removed, was two gallons one quart, besides which

more than a gallon was spilt about. Attached to the main cyst was one the size of an orange, which had an independent cavity, and contained a quantity of hair. This was attached to one spot, only the size of a shilling, of the cyst wall, and had intermingled in its meshes a quantity of white, creamy material. Near the attachment also were some calcareous plates. In the process of isolation of the cyst, advantage was taken of the comparatively slight adhesion of the peritoneum to its deeper portions, to in part, as it were, enucleate it, and in this manner the pedicle was separated from what seemed to be its point of attachment. Several small bleeding points were stopped by cat-gut ligatures and the actual cautery. A drainage tube was passed from the vagina through Douglas' space, and, having been brought out through the lower angle of the wound, both ends were tied. The right ovary was healthy. The pelvis having been sponged out, the wound was dressed in a similar way to that in the former case, save that there was no occasion to secure the pedicle to it. Seven deep and some superficial cat-gut sutures were required. When placed in the heated bed, with hot jars, an enema of whiskey and laudanum was given, and a dry napkin placed between the thighs to receive any discharge from the drainage tube. In half an hour after the operation twenty drops of Battley were given by the mouth. About noon the patient was slightly sick; but about 4 p.m. she was warm and comfortable, the pulse 98—but little pain. The catheter drew off about 10 ounces of clear, healthy urine. The napkin being saturated with a slightly coloured fluid, was changed for another and dry one. At 11 p.m.—Has been doing well; getting opium pills every second hour. Suddenly got a slight rigor, but rallied at once after the exhibition of warm stimulants. The catheter passed, but drew off only a few ounces. The napkin is saturated with a clear but disagreeably-smelling fluid, with an odour not unlike that of the exudation from a recent stump.

24th, 1 a.m.—The patient seems restored, and has had sleep. She continued in this state till 4 a.m., when she got very restless, broke out into cold sweat, picked at the bed-clothes, continued steadily to sink, and died at 10 o'clock, just twenty-four hours after the operation. She was free from pain, and retained consciousness to the last. No autopsy was had; but there had evidently been no haemorrhage, for the fluid which, exuding through the drainage-tube, saturated the napkins, continued to the last, and was free from sanguineous tinge.

*Two Cases of Ovariectomy.**Table of Cases in which the operation of Ovariectomy was completed in Ireland to June, 1874.*

• S.—Single. M.—Married. m.—Mother.

No.	Date of Operation	Operator	Operation Where performed	Age	Condition	Result	Authority	Side	Hour of operation preceding appendectomy	Observations
1	May, 1848	Wm. Thompson, of Lisburn	—	—	Recovered	—	Medical Press, old series, Vol. I., page 377; Vol. II., page A ²	—	—	Became pregnant 2 years after the operation, and believed to be at present alive.
2	—	Ditto	—	40	Died	—	Ditto	—	—	Death from shock of operation.
3	August, 1859	C. Clay, of Manchester	Private	40	M.	Died 24 hours	Dub. Hos. Gaz. Vol. VII., Page 52; Path. Trans., N.S., Vol. I., page 114	L.	2	Incision 10 inches long; no adhesions; pe- dicile ligatured; death apparently from shock.
4	March, 1862	S. Gordon	Whitworth Hospital	—	—	Died 3rd day	Dub. Med. Jour., Vol. XXXVII., page 202	—	—	The "minor operation;" slight adhesions; clamp to pedicle; death from hemorrhage.
5	" "	G. H. Kidd	Coombe Hospital	32	M.	Died 28 hours	Ditto	R.	—	Incision about 5 inches; abdominal, pelvic, intestinal, and omental adhesions; pedicle ligatured, and strangulated by bare-lip pin in wound; death from peritonitis.
6	Spring, 1863	F. Bullen	Mercy Hospital, Cork	40	S.	Died 20 hours	Particulars kindly pro- cured for me by H. M. N. Jones, F.R.C.S.	R.	2	The tumour was large; there were extensive adhesions to the abdominal wall and intestines; there had been abdominal tenderness 14 days previous to the operation; death from collapse.
7	August, 1863	T. S. Wells, of London	Private	45	S.	Recovered	Dub. Med. Jour., Vol. XXXVII., page 189; Path. Soc. Trans., N.S., Vol. II., page 194	—	—	No adhesions; pedicle treated by clamp which was removed the fourth day; the minor operation. This patient got no opium after the operation.
8	" "	A. Walsh	Adelaide Hospital	45	m.	Recovered	Dub. Med. Jour., Vol. XXXVII., page 195	R.	—	Incision 3 inches; afterwards prolonged 1 inch upwards, on account of the solidity of tumour; pedicle treated by clamp; dura- tion of disease, 8 months.
9	" "	T. S. Wells, of London	Private	24	S.	Died 82 hours	Ditto, page 189 (and own book, No. 74)	—	—	Length of incision, 4 inches; no adhesions; pedicle treated by clamp; death from peritonitis.
10	Sept.,	"	Ditto	35	S.	Died 40 hours	Ditto (and No. 75)	—	—	Length of incision, 5 inches; no adhesions; pedicle treated by clamp; death from peritonitis.

11	Nov.,	"	Prof. M'Dowell	Whitworth Hospital	30	M.	Died 4th day	Ditto, page 190	—	6	Minor operation; extensive adhesions; retro-
12	"	"	M. Collis (the late)	Meath Hospital	26	—	Died 8th day	Ditto, page 179	R.	1	Adhesions of great strength behind and inferiorly; cyst multilocular—at operation, 7½ gallons drawn off; death from gangrenous peritonitis; duration of disease, 5 years, from cold, followed by ovaritis.
13	April, 1865	R. G. H. Butcher	Mercer's Hospital	24	S.	Recovered	Ditto, Vol. XI, page 259	—	—	Incision 4 inches long; pedicle transfixed and tied in halves, a large artery in it being ligatured separately; the ligatures which were brought through centre of wound, separated 41 days after operation. No adhesions; the cyst was drawn out easily as if it had not been worn chamois leather; pedicle long, treated by clamp; immediately on coming out of elaiiform intense pain set in.	
14	May,	"	T. Beatty (the late)	Private	36	S.	Died 48 hours	Particulars kindly given by J. T. Turfitt, Esq., Prae. R.C.S., who was present	L.	3	An elder sister, who was often tapped, died of ovarian disease.
15	August,	"	S. Gordon	Malton de santé	32	S.	Died 48 hours	Particulars kindly given by operator	—	No	Tumour very large, and two-thirds solid; death from shock; never rallied.
16	"	"	R. G. H. Butcher	Private	38	S.	Recovered	Dub. Med. Jour., Vol. XI, page 267	R.	—	Incision 3 inches; very firm adhesions; pedicle transfixed and tied; duration of disease, 10 years.
17	Sept.,	"	Prof. M'Dowell	Whitworth Hospital	18	S.	Died 14 hours	Particulars kindly given by the operator and Dr. T. E. Little	R.	No	Death from hemorrhage; the pedicle secured by clamp, which became in part separated, the centre of the pedicle slipping back into the belly, leaving the rest of it apparently secured; disease, 12 months apparently.
18	Nov.,	"	P. C. Smyly	Private	40	S.	Recovered	Dub. Med. Jour., Vol. XII., page 11	L.	No	Duration of disease, 2 years; no adhesions; pedicle secured by clamp. The operator informs me that this patient is now (1874) in good health.
19	August, 1866	A. Walsh	Private		46	S.	Died 8th day	Medical Press, Vol. II., 1866, page 249	both	27	Duration more than 3 years: incision 2½ inches, but enlarged to 6 inches; cyst fragile and ruptured, adherent to parietal colon, small intestine and spleen; pedicle secured by clamp; left cyst, very small, its pedicle also secured by clamp; death from peritonitis.
20	Jan., 1867	Ditto	Private		48	—	Recovered	Trans. Path. Soc. N.S., Vol. III., page 201	R.	No	Disease of 3 months' standing. Patient's sister had died of ovarian disease of 8 months' standing.
21	Feb.,	"	Ditto	Private	28	S.	Died 3 days	Particulars kindly given by operator	both	—	Short incision; extensive anterior adhesions; death from peritonitis.

TABLE—*continued.*

• S.—Single. M.—Married. m.—Mother.

No.	Date of Operation	Operator	Operation Where performed	Age	Condition	Result	Authority	Side	Observations
								How often repeated	Previously reported
22	March, "	A. Banon (the late)	Jervis-street Hos- pital	17	S.	Died 18th day	Medical Press and Cir- cular, Vol I, 1867, pages 378 and 408	L.	S Had been seduced more than a year before; incision, 4½ inches, but afterwards enlarged by 1½ more; strong and extensive adhesions in close connexion to ligaments of liver, stomach, colon and great omen- tum; pedicle transfixed and tied in halves; actual cautery and silver wire ligature to bleeding spot. N.B.—The patient ap- parently continued to improve until one hour before death, then suddenly col- lapsed. The wound was completely healed, and it seemed as if death was due to sud- den gaseous distension of stomach and colon, stopping heart and respiration. Firm adhesions; death apparently from shock.
23	May, "	W. Colles	Stevens' Hospital	—	S.	Died 48 hours	Given by Mr. Colles' kind permission	R.	Yes Anterior adhesions; death from gastritis and peritonitis; autopsy showed the lining membrane of stomach at coo-pigal opening to be quite black. Very firm adhesions.
24	" "	A. Walsh	Adelaide Hospital	52	S.	Died 4 days	Particulars kindly given by operator	L.	No Incision, 4 inches; moderate adhesions; pedicle long and narrow, secured by clamp; death from extensive peritonitis. There was also a small fibrous tumour attached to fundus of uterus.
25	Nov., 1868	W. Stokes	Meirer's Hospital	30	—	Died 23 hours	The books of the Hospital	R.	—
26	Sept., 1868	W. Stokes	Richmond Hospital	57	M.	Died 30 hours	Dub. Med. Jour., Vol. XLIX, page 136	L.	No —
27	Oct,	P. C. Smyly	Private	26	M.	Recovered	Particulars kindly given by operator	L.	No About a year awaiting; tapped once a month before ovariectomy to relieve urgent dys- menia; slight anterior adhesions; the cyst had no pedicle, and was sessile; on broad ligament close to uterus, attachment trans- fixed, and each half secured by a loop of silver wire; died very suddenly, apparently from cerebral embolism; great effusion in sub-arachnoid spaces; abdominal second healed throughout; no peritonitis.
28	" "	W. MacCormack	Belfast General Hospital	30	S.	Died 5 days	Particulars kindly given by operator, now Sur- geon to St. Thomas's Hospital, London	R.	1 R. Had been seduced more than a year before; incision, 4½ inches, but afterwards enlarged by 1½ more; strong and extensive adhesions in close connexion to ligaments of liver, stomach, colon and great omen- tum; pedicle transfixed and tied in halves; actual cautery and silver wire ligature to bleeding spot. N.B.—The patient ap- parently continued to improve until one hour before death, then suddenly col- lapsed. The wound was completely healed, and it seemed as if death was due to sud- den gaseous distension of stomach and colon, stopping heart and respiration. Firm adhesions; death apparently from shock.

L.	No.	Date	Operator	Time	Manner of Death	Post-mortem	Diagnosis	Remarks
29	Nov.,	"	Ditto	—	Died 48 hours	Ditto	Dub. Med. Jour., Vol. L.I., page 64; Path. Soc. Trans., N.S., Vol. IV., page 308	Swelling 18 months; no adhesions; and vesicle; pedicle secured by clamp; death from peritonitis.
30	May,	1870	J. K. Barton	Addelaide Hospital	36 m.	Died 23 hours	Dub. Med. Jour., Vol. L.I., page 64; Path. Soc. Trans., N.S., Vol. IV., page 308	From peritonitis; no post-mortem. Duration of disease, 2 years; incision 3½ inches increased to 4 inches, on account of scalding; extensive anterior and omental adhesions; pedicle secured by clamp; death from acute peritonitis.
31	July,	"	P. C. Smyly	Private	45 M.	Died 5th day	Particulars kindly given by operator	Very large size, and was progressing most favourably till she got a sudden start, after which she sank and died the next day. There was extensive peritonitis.
32	"	"	Ditto	Ditto	45 M.	Died 6th day	Ditto	Attached to sides, intestines, and great omentum; incision had to be elongated to midway between umbilicus and ensiform cartilage; pedicle long, secured by clamp. Death apparently from peritonitis.
33	March,	1871	F. B. Quinlan	Vincent's Hospital	29 S.	Died 63 hours	Path. Soc. Trans., N.S., Vol. IV., page 321	Extensive adhesions; death from sinking.
34	"	"	G. H. Porter	Meath Hospital	22 S.	Died 46 hours	Particulars kindly given by operator	Duration of disease, 16 months; incision 4 inches, increased by 1 inch; three slight adhesions to great omentum; bleeding points stopped by nitrate of silver; pedicle short and thick, secured by clamp. Death from peritonitis.
35	April,	"	P. J. Hayes	Mater Misericordia Hospital	32 m.	Recovered	Dub. Med. Jour., Vol. L.I., page 310	No adhesions; death from peritonitis.
36	May,	"	G. H. Porter	Sir P. Dun's Hospital	40 S.	Died 4th day	Particulars kindly given by operator	Duration of disease, 18 months; peritonitis had followed the tapping; length of incision 8 inches; a cyst separated, tapped; pedicle thick, and secured by double whipcord ligature; death from low peritonitis. Encysted, multicellular and extensively adherent to intestines.
37	"	"	G. H. Porter	Adelaide Hospital	66 M.	'Black'	The books of the Hospital	—
38	June,	"	A. Walsh	Private	35 S.	Recovered	Irish Hos. Gaz., Vol. I., page 307	Disease 2 years' standing; incision 24 inches; some omental adhesions; bleeding points secured by ligature and actual cautery; clamp to pedicle.
39	July,	"	T. M. Madden	aged m.	Died 46 hours	Particulars kindly given by operator	Duration of disease, 18 months; peritonitis had followed the tapping; length of incision 8 inches; a cyst separated, tapped; pedicle thick, and secured by double whipcord ligature; death from low peritonitis. Encysted, multicellular and extensively adherent to intestines.	
40	Oct.,	"	H. J. Tyrrell	South Infirmary, Cork	26 —	Died 18 hours	Particulars kindly obtained for me by H. M. Jones, F.R.C.S.	Duration of disease, 2 years; multilocular; extensive adhesions in front, behind, and laterally; pedicle transected and ligatured; also clamp used; died of exhaustion; no peritonitis.
41	Dec.,	"	H. J. Tyrrell	Mater Misericordia Hospital	21 S.	Died 63 hours	Particulars kindly given by the operator	—

TABLE—*continued.*
• S.—Single. M.—Married. m.—Mother.

No.	Date of Operation	Operator	Operation Where performed	Age	Condition	Result	Authority	Side	Observations
42	Dec., 1871	P. J. Hayes	Ditto	36	M.	Died 46 hours	Dub. Med. Jour., Vol. L.I.V., page 189	L.	Tumour adherent everywhere, but adhesions were recent and gave way easily; pedicle transfixed and tied in halves by catgut ligatures; death from shock and exhaustion; a small fibroid tumour found in uterus
43	Sept., 1872	E. S. O'Grady	Sir P. Dun's Hospital	30	S.	Died Recovered	The books of the Hospital Irish Hosp. Gaz., Vol. I., page 176	R.	Vide report of case.
44	Oct., 1872	G. H. Kidd	Mercer's Hospital	28	S.	Recovered	Path. Soc. Trans., N.S., Vol. V., page 215	L.	No Disease about 2 years; no adhesions; pedicle secured by clamp.
45	Feb., 1873	P. J. Hayes	Coombe Hospital	40	m.	Died 3rd day	Path. Soc. Trans., N.S., Vol. V., page 215	L.	Duration of disease about 3 years; internal anterior adhesions, also by a long dense fibrous band to right lobe of liver; length of incision not mentioned, but it is stated that the cut was enlarged upwards, to allow this to be got at and divided after being tied with silk.
46	March, " "		Mater Misericordiae Hospital					L.	Encysted, unicellular; adherent to rectum and intestines.
47	July, "		Private, Co. Cork	42	M.	Recovered	Particulars kindly procured for me by H. M. N. Jones, Esq., F.R.C.S.	L.	Incision about 8 inches; extensive adhesions in pelvis, necessitating small portions of the cyst being left; pedicle secured by transfixion and ligature; no post-mortem, but death believed to have been caused by peritonitis.
48	August, "		Private	42	m.	Died 4th day	Particulars kindly given by Dr. Churchill	R.	Adhesions in front; pedicle tied and dropped back; recovered the operation completely, the wound being some time healed, and patient able to be up and about for several days. Whilst going about she caught cold, and died of an aggravated bronchitis 25 days after the operation.
49	" "	P. C. Smyly	Private	46	M.	Recovered	Particulars kindly given by operator	R.	Pedicle secured by clamp.
50	Oct., "	G. H. Kidd	Coombe Hospital	—	m.	Recovered	Given by kind permission of operator	—	Slight adhesions at side of tapping; death from peritonitis.
51	Nov., "	G. H. Porter	Meath Hospital	23	S.	Died 3rd day	Particulars kindly given by the operator	L.	Duration about 3 years; adhesions almost universal; incision had to be prolonged; pedicle ligatured; proved to be colloid cancer.
52	Dec., "	G. H. Kidd	Coombe Hospital	36	m.	Died 18 hours	Medical Press and Circular, Vol. I., 1874, page 22	L.	—
53	April, 1874	E. S. O'Grady	Mercer's Hospital	36	S.	Died 24 hours	—	L.	Vide report of case.

The drainage-tube through the peritoneal *cul-de-sac*, as advocated by Marion Sims, clearly in this case acted well as a "vent" for any fluids present. Ovariotomy is still an infrequent operation in this country. It is desirable that all cases in which it has been performed, whether followed by recovery or not, should be recorded.

I am much indebted to the different gentlemen whose names appear therein as doing so, for their courtesy in giving me their cases, and so enabling me to make up the appended Table. In five of the cases (Nos. 25, 37, 40, 43, and 47) no name appears in the column "operator." The two gentlemen who operated on those cases not having favoured me with any reply to my communications to them on the subject, I have not felt myself at liberty to make use of their names.

So far as I am aware, abdominal section, with view to removal of ovarian or uterine tumours, has been undertaken 61 times in Ireland. Should any other cases have been operated on in this country, I would feel indebted to those gentlemen who had charge of them if they would send me particulars, in view of the tabulation of Irish cases being continued at a future period. 53 of these are quoted in the accompanying Table, and seem to have been cases in which the removal of ovarian tumours was completed. Of the remaining 8, 2 were cases of ovarian tumour in which the operation was not finished. (1.) One of those occurred in the practice of Dr. Thompson, of Lisburn. A brief reference to it may be found in Vols. 50 and 51 of the *Medical Press*, where it is stated that deep adhesions prevented the completion of the operation, and that death resulted from peritonitis. (2.) Professor Mapother has kindly given me memoranda of the other unfinished ovariotomy. In December, 1870, he proceeded to operate on a patient aged thirty-five, who was married, and mother of four children, and who had not been previously tapped. "An incision of four inches long was made down to transversalis fascia; then energetic and prolonged vomiting from the chloroform rendered postponement necessary; operation refused ever after; tapped a week later." This woman recovered the tapping, and died four months later in the Hospital for Incurables. Of the other six cases, there is some doubt whether one of them was "ovarian fibroid" or uterine tumour. I regret not being able to obtain any information from the operator himself concerning the case, but from what I have been told, it seems very probably to have been one of uterine disease. (3.) The woman, aged thirty-five, was operated on in November, 1865, in a southern county.

She died in twenty-six hours. The phenomena of severe shock are said to have been manifested when the trocar was plunged, under the impression that fluid was present, into the solid tumour. There were no adhesions.

The remaining five cases were uterine. (4.) In April, 1863 (*Dub. Med. Journal*, Vol. XXXVII., p. 202), Dr. Kidd operated in the "Maison." When the tumour was exposed, careful examination showed it to be uterine, and the operation was not proceeded with. The patient recovered—a fact not unimportant in estimating the effect abdominal section may exercise on the mortality of operation, such as ovariotomy, in this country, involving free opening of the peritoneal sac. (5.) In June, 1864, Mr. Spencer Wells, from London, operated on a single lady, aged forty-five. She died three hours after commencing to take chloroform. The disease was fibro-cystic tumour of the uterus. A large portion of the morbid mass was removed. An account of this interesting case will be found at page 124 of Mr. Wells' admirable treatise. (6.) Dr. Denham reports (*Trans. Path. Soc.*, N. S., Vol. III., p. 203) having removed, in February, 1867, in the Rotunda Hospital, a fibroid uterus for disease of six years' duration. The patient died in forty-eight hours. (7.) Another uterus was also, I believe, shortly afterwards removed in this city, likewise with a fatal result. (8.) Which occurred, too, in a case at Mercer's Hospital, in which, December, 1870, I removed from a single woman, aged twenty, the uterus, with large fibroid tumour, to which both ovaries were inseparably attached. The patient rallied well after this severe operation, and, save for an act of great imprudence on her own part, might possibly have recovered. No *post-mortem* was made, but there can be little doubt that death was due to secondary haemorrhage. A cast of the tumour, which weighed twenty-eight pounds, is in the museum of the Royal College of Surgeons.

In addition to his case quoted above, Mr. Wells (see Table) has operated on four other occasions in Ireland, and Mr. Clay, of Manchester, once. Of these six patients, unfortunately only one (No. 7 in Table) recovered. Deducting from the Table those cases of Messrs. Clay and Wells, there remains a total of forty-eight ovariotomies completed in Ireland by Irish surgeons. In fifteen of these one recovery took place. One woman (No. 22) seems to have only "missed" her recovery, and in two other cases (Nos. 27 and 32) death appears not to have been fairly attributable to the operation.

It will be seen by the Table that the recoveries in the different Dublin hospitals have been 7 out of a total of 28 operations. In some of the hospitals the recoveries were at the rate of 50 per cent.

It has often been said, and various explanations have been offered to account for the statement, that the rate of mortality in Ireland after ovariotomy has been greater than prevailed elsewhere. The proportion of deaths after the operation has, doubtless, been very great, but is it really the case that the operation with us has been more fatal than in other places? Mr. Wells quotes (page 312) the statistics in King's College, Middlesex, St. Bartholomew's, St. George's, and University College Hospitals up to November, 1866. *Of thirty-nine operations, thirty patients died; only nine recovered.* From such volumes of reports of London hospitals as I have been able to refer to, it may be that in some of these institutions the fatality in more recent years has not been quite so great. My opportunities, however, for consulting these works have not been sufficient to enable any definite statement to be made on this point. Though the results in Guy's have been much more satisfactory than in other London hospitals, yet the proportion of deaths has been greater than one would infer from Mr. Wells' quotation, where, doubtless owing to a printer's mistake, the figures indicating recoveries and deaths are the reverse of those in the "Report" (Vol. XV., 3rd series, page 633). The subsequent volumes of this work show that the death-rate in this hospital has not decreased, the fatal cases there still maintaining about the same numerical excess over the recoveries. *The above death rate is greater by nearly two per cent. than that which has occurred after the operation in our Dublin hospitals.* The known and proved ability of the surgeons of these and other celebrated London hospitals puts it beyond cavil that every skill was brought to bear on diagnosis, on the preliminary, operative, and subsequent treatment of their cases. Moreover, it surely is to be supposed that matters relating to hygienic and nursing arrangements were in every respect attended to with the most vigilant care. Isolated results obtained by individual operators, or in "special" institutions, need not be alluded to here. Such have but little to do with a question of the relative mortality of ovariotomy in Ireland and England, in Dublin and London. Hereafter, when our cases shall have sufficiently increased in numbers to allow of such comparisons being made, I have no doubt that the result will not be discreditible to the surgery of this country.

In two (Nos. 19 and 21) of the cases on the accompanying Table, both ovaries were removed. Each of these patients died. Of the cases in which the side is mentioned, the right ovary was removed in sixteen, the left in nineteen.

It will also be seen that not a single one of the successful cases had been tapped. Of the eighteen cases in which mention is made of their having been previously tapped (varying from one to twenty-seven times), not one recovered.

About half the fatal cases occurred during the first two days after the operation; many in the first twenty-four hours. As regards the bearing social position may have on the patients' chances, concerning three no mention is made as to whether they were private or hospital; probably they were the latter. The six ladies operated on by Messrs. Clay and Wells were, it may fairly be assumed, in affluent circumstances, and in a position to have every comfort and care during all the stages of their malady. The untoward results with regard to them are, doubtless, merely an instance of one of those "runs" of similar occurrences and like cases which all hospital surgeons are occasionally apt to meet with. Exclusive of these, thirty-two of the cases were hospital, and thirteen are entered as private; but some of these latter were virtually, so far as "hospitalism" is concerned, hospital patients, being private, or pay, patients in hospital institutions; others were in such conditions and surroundings as to be certainly not so well placed as if in an ordinarily well regulated hospital. Of the few who were in fairly comfortable circumstances, the greater part did well.

Since this paper was printed, by the favour of Mr. Stokes I was present when he operated (June, 1874) in the Richmond Hospital. Mr. Stokes informs me that his patient, aged sixty-two, was married, but never had children. The disease was of three years' standing. The adhesions were slight, and the growth (right ovary), though large, was removed without difficulty through a limited incision. The woman did well till the evening of the 2nd day, when she suddenly sank and died in half an hour. Autopsy showed no apparent cause for death. This patient had been once previously tapped.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

PUBLIC HEALTH IN IRELAND.

1. *Short Lectures on Sanitary Subjects.* By RICHARD J. HALTON, Licentiate of the King's and Queen's College of Physicians, Ireland; Medical Officer of Health to Kells. London: Baillière, Tindall, & Cox. 1874. Pp. 192.
2. *Lectures on Public Health delivered in the Lecture Hall of the Royal Dublin Society, in February, March, April, and May, 1873.* By DR. W. STOKES, F.R.S.; EMERSON REYNOLDS; J. W. MOORE; JAMES LITTLE; THOMAS W. GRIMSHAW; ALFRED HUDSON; ROBERT M'DONNELL, F.R.S.; E. DILLON MAPOTHER; MESSRS. CARLISLE HENDERSON, Architect; and R. O'BRIEN FURLONG, Barrister-at-Law. Pp. 203.
3. *Observations on a Public Health Bill for Ireland.* Prepared for the Irish Poor Law Medical Officers' Association, by D. T. TOLER MAUNSELL, M.B., Secretary to the Association. 1874. Pp. 8.
4. *Remarks on Impending Sanitary Legislation for Ireland.* By THOMAS WRIGLEY GRIMSHAW, A.M., M.D., &c. 1874. Pp. 20.
5. *Remarks on the Public Health (Ireland) Bill.* By THOMAS WRIGLEY GRIMSHAW, A.M., M.D., &c. 1874. Pp. 8.

THE list of works at the head of this article indicates that Sanitation and State Medicine in Ireland are at last claiming that due share of attention which has long been denied them. With the exception of the published lectures of Drs. Mapother and Cameron, and those sickly hot-bed plants, the Carmichael Prize Essays, nothing has really been done until very recently to promote the interests of Public Medicine in Ireland. It is true that Dublin

University has held out every encouragement to its own graduates to make a special study of subjects connected with State Medicine, and has so far succeeded, that five Dublin hospital physicians have passed the very extended and difficult examination required by the University. To this effort of the University we probably owe some of the publications now under consideration, for among their authors' names appear the only two State medicine diplomats upon whom the University has conferred special honours, for their superior knowledge of this branch of medical science.

The work of Dr. Halton augurs well for the prospect of the public health, when entrusted, as it is to be, under Sir M. Hicks Beach's Irish Public Health Bill, to the care of the dispensary medical officers of Ireland. We cannot, of course, expect that all, or even a large proportion, of the officers of the Irish Poor Law Medical Service can immediately become such accomplished and comprehensive sanitarians as Dr. Halton, of Kells; but by his precepts and example he will do much to assist his brethren in efficiently performing the new duties about to be entrusted to them by the State. Dr. Halton's work is written in a clear and popular style, so that it may be easily read by the non-professional, as well as the professional, reader with advantage. The remarks on fresh air and ventilation are excellent, and the tendency of the life in crowded dwellings and workshops to lead to the free use of alcoholic stimulants and ultimate intemperate habits is eloquently insisted on by the writer, and should be earnestly thought over by those well-intentioned, but *intemperate*, leaders of teetotalism, who describe dirt, over-crowding, and disease as the inevitable result, but never as the primary cause, of intemperance. All those who have paid special attention to the social life of the working classes will agree with Dr. Halton that many of the well-intentioned and industrious working men first contract habits of intemperance by using alcoholic drinks, as, to them, the only available stimulant capable of readily counteracting the depressing effects of the poisonous atmosphere in which they reside. Dr. Halton does not confine himself to the consideration of the physical causes of ill health; but, duly recognising the relation between the psychical and physical conditions, points out how the health of the community may be injuriously affected by the plentiful diffusion of the cheap and nasty literature of the present day. Dr. Halton touches upon all the cardinal points connected with sanitation; and, without meddling with disputed points, or entering into the deeper or more intricate

questions of sanitary science, has produced an excellent little book, which we hope will prove a foundation for many sanitary lectures beyond the town of Kells.

The volume published by the Royal Dublin Society is a very different work from that of Dr. Halton, and, we are afraid, not calculated to be of the same public utility, though it will always occupy an important place among the Society's proceedings. The Royal Dublin Society has always been foremost in promoting new discoveries and educating the public upon these points which are for the time attracting public attention. The present volume has been delayed for an almost unpardonable time, the lectures being over a year old, thus lending an antiquity to some of the figures employed where it was necessary to illustrate important points by the use of vital statistics. Although Professor Haughton delivered one of the lectures, we do not find his name among the list of contributors to the volume. We at first thought this was an omission in the table of contents, but find that the lecture is really omitted. This is a curious proceeding, and the more so as some of the views put forward by the learned professor were of so novel a character as to invite close criticism. The various lectures cannot be looked upon in the light of a course of lectures, each lecture being almost complete in itself, and the references from one lecturer to another being but few.

We are sorry to find that the views put forward by Dr. Stokes in his "Introductory Discourse on Sanitary Science in Ireland," if not in direct contradiction, are, at least, very far from being in accordance with those advocated by some of the succeeding lecturers; especially those on "Zymotic Diseases," by Dr. Grimshaw, and "Disinfection," by Dr. M'Donnell. The following assertion of Dr. Stokes is, we think, too sweeping, and calculated, when taken with what follows on the next page, to throw discredit on those whom Dr. Stokes has disparagingly called "*exclusively detergent sanitarians*"—

"In fact, many modern sanitarians, with but a smattering of knowledge, and with imperfect powers of reasoning, have done much to throw ridicule upon a great subject; who have adopted some special line of investigation without any previous training or discipline of the mind."

Are there "many" such persons? We do not think so. On the following page Dr. Stokes says:—

"Now, to put the matter in a simple way, the favourite doctrine was, that disease, endemic or epidemic, proceeds from a cause which is preventable—namely, dirt, foul water, foul air, foul dwellings, foul habits, and unwholesome food. And so the question may be asked—what is dirt? Is it confined to race, latitude, or climate? Does it always produce similar effects, or is it capable at one time of causing plague, at another cholera or fever, small-pox or scarlatina? Is it always detectable by the eye, or even by the nose? And are there conditions in which it is nearly, if not altogether, innocuous? Is it an entity capable of analysis? Are there conditions in which it is not preventable? Or is its final cause the furnishing to certain minds a ready explanation of that which is truly inexplicable? There is no proof that dirt, in the common acceptation of the term, ever by itself gave rise to a single specific disease."

When we consider that the above series of questions was addressed to a popular audience, we cannot but characterise Dr. Stokes' remarks as calculated to lead to serious mischief, and to raise what we believe lawyers call *false issues* on every one of the queries propounded. What does Dr. Stokes' "it" mean in the above queries? We presume *dirt*. Surely Dr. Stokes knows very well what "dirt" is, and to speak of it as separate from foulness, as applied to air, water, &c., is simply to confuse terms. Then to call dirt "it" afterwards, as if proved to be a specific substance, is making confusion more confounded. We are sorry to write thus of any expressions falling from such an authority as Dr. Stokes, but we are bound to protest against them, especially as they led to an apparent discrepancy between the leader of the lectures and those that followed, and even compelled Dr. Grimshaw to introduce a sort of definition of dirt into his lecture. Dr. Stokes even seems to imply that living along the Dublin quays, and breathing the foul emanations from the Liffey, is by no means an unhealthy condition, and quotes Dr. Grimshaw's fever map in favour of his views; but the map in question—a copy of which is to be found in the volume—shows a *great prevalence* of fever along the *borders* of the quays. The fact is that comparatively few people live *on* the quays, and those who do, when sick, do not become hospital patients, and, therefore, would not come within the statistics upon which Dr. Grimshaw's map is founded.

Dr. Reynolds' lecture, as published, consists of little more than a syllabus of the lecture delivered, which, as we had the pleasure of being present on the occasion of its delivery, we may state was an

excellent *précis* of the knowledge we possess with regard to the "*discrimination of good water and wholesome food.*" We would quote the following piece of information for the benefit of the citizens of Dublin and such other places as have a good water supply:—"The Vartry water, *as delivered from the street mains* in Dublin at present, withstands this test (the sugar test) perfectly, but it often becomes impure when allowed to pass through ill-kept cisterns." We believe that well-kept cisterns are the exception.

One of the most novel lectures in the volume is that by Dr. J. W. Moore, on "Meteorology in its Bearings on Health and Disease." The way in which the subject is treated is quite beyond the common. This subject has up to the present been almost neglected, and but few observers, such as Dr. Ballard, have taken the trouble carefully to compare the relations between disease and meteorological condition. Dr. Moore having given a general account of the present status of modern meteorology, confines his special remarks to—

"I. The influence of season on thoracic and abdominal affections respectively.

"II. The influence of season on the progress of epidemics of recent years—namely, (1) cholera, (2) whooping-cough, (3) scarlatina, and (4) fever.

"III. The influence of season on four principal endemic and epidemic diseases—namely, (1) measles, (2) whooping-cough, (3) scarlatina, (4) fever."

Under the first head Dr. Moore shows how abdominal affections prevail in the summer, and thoracic affections in the winter months, the former reaching their maximum in the third, the latter in the first quarter of the year. He also points out more particularly how extremely cold weather raises the mortality far above average from the prevalence of chest diseases. We hope Dr. Moore's remarks upon this subject will dispel the illusion of those who talk of "*fine seasonable frosty weather*" as *healthy*. Dr. Moore's lecture is illustrated by excellent graphic diagrams, demonstrating all these points in a way which it is impossible to describe in a notice such as the present. The greater prevalence of cholera in the summer will not astonish any one, but many, especially the unprofessional public, will be surprised to hear that small-pox, typhus, and scarlatina, are diseases of the winter season, and that measles is a summer affection,

generally followed by a winter prevalence of whooping-cough. We may add that whooping-cough not only follows as an epidemic upon measles, but seems specially prone to attack the same individual. A better subject for a popular lecture could scarcely have been selected, and one more calculated to set the public thinking why the *most* feverish diseases prevail most in winter, and those not popularly considered *so* feverish in what the public commonly make the feverish heat of summer. We would here suggest that the Royal Dublin Society, always full of educational enterprise, should have a separate *course* of lectures on this interesting subject, which is capable of extension, even for a popular audience, far beyond the limits to which it had necessarily to be restricted in Dr. Moore's lecture.

Dr. Little, in his lecture on the "Geographical Distribution of Disease," classifies diseases under the following heads:—

- "I. Those confined to a limited area, beyond which they are never, or very seldom, found, as the Beriberi of Southern India and Ceylon.
- "II. Those usually confined to a limited area, but which extend beyond it under exceptional meteorological conditions, as yellow fever, which requires a mean temperature of 72° Fahr. for its propagation.
- "III. Those which have a limited area of *persistent existence*, but which may spread to any country, as cholera.
- "IV. Those which have no *persistent area*, but which, arising sometimes in one part of the world, sometimes in another, spread thence with great rapidity, as influenza.
- "V. Those which are met with in every country in the world, but only in limited areas in each country, as goitre and leprosy."

The best part of Dr. Little's lecture is undoubtedly that directed to cholera, and probably there is nowhere to be found a more concise and graphic account of the progress of the Dublin cholera epidemic of 1866, from its native habitat in Bengal in 1864, until its arrival in Dublin on the 26th of July, 1866. This is illustrated by an excellent map, founded on that published by Dr. Macnamara, in his celebrated work on Cholera.

Dr. Grimshaw's lecture on "Zymotic and Preventable Diseases" is a general review of our present knowledge with regard

to the cause and spread of zymotic diseases. The lecturer considered these diseases from the following points of view:—

- “ 1st. The damage they inflict upon us.
- “ 2nd. The conditions under which they spread.
- “ 3rd. The conditions under which they arise.
- “ 4th. The means suggested for their control.”

The first point is illustrated by the following table of deaths in Ireland from zymotic diseases for five years:—

Fever,	-	-	21,895, or at the rate of 4,379 per annum.
Scarlatina,	-	-	16,474 „ „ 3,295 „
Diarrhoea,	-	-	10,081 „ „ 2,016 „
Whooping-cough,	-	-	9,475 „ „ 1,895 „
Small-pox,	-	-	1,553 „ „ 314 „

From this table it appears that by far the most serious of these zymotics are such as are always amongst us—1st, fevers; 2nd, scarlatina. This is further demonstrated by an abstract of the deaths returned from the principal zymotics in Dublin during the first nine years of the working of the Births and Deaths Registration Act of 1864, as follows:—

			Total.	Rate per annum.
Fevers,	-	-	3,506	389
Diarrhoea,	-	-	2,576	286
Scarlatina,	-	-	2,407	267
Small-pox,	-	-	1,693	188
Whooping-cough,	-	-	1,464	162
Cholera,	-	-	1,293	143
Measles,	-	-	1,124	124

The relation between the total death-rate and the death-rate from zymotics generally and from special zymotics is illustrated by an elaborate diagram, representing the variations in the Dublin death-rate, which does great credit to the lithographers and to the liberality of the Royal Dublin Society, at whose cost the illustrations are produced. The general parallelism between the curves of zymotic death-rate and general death-rate is very remarkable. The following table, where the towns are arranged in the order of their general and zymotic death-rates respectively—the lowest rate being at the head of the column—points to the same conclusions:—

TOTAL DEATH-RATE.	ZYMOTIC DEATH-RATE.
1. Birmingham,	1. Bristol,
2. Hull,	2. Hull,
3. London, Bristol,	3. Birmingham, Leeds,
4. Dublin,	4. Edinburgh,
5. Sheffield,	5. London,
6. Edinburgh,	6. Dublin,
7. Leeds,	7. Sheffield,
8. Newcastle-on-Tyne,	8. Liverpool,
9. Salford,	9. Manchester and Newcastle,
10. Manchester,	10. Glasgow,
11. Liverpool, Glasgow.	11. Salford.

The interesting relation between the prevalence of zymotic disease and density of population is shown in the following statement:—

“TABLE II.—*Showing the relation between density of Population, general Death-rate, and Death-rate from Zymotic Diseases in 13 large Towns of the United Kingdom, as shown in Diagram II.*

Towns	Population per Acre	Deaths per 1,000	Deaths per 1,000 from 7 principal Zymotics
London, . . .	41·8	24·2	4·5
Bristol, . . .	37·8	24·2	2·0
Birmingham, . . .	48·3	23·4	3·6
Liverpool, . . .	103·0	31·1	5·6
Manchester, . . .	84·5	30·4	6·0
Salford, . . .	23·9	28·5	7·5
Sheffield, . . .	11·2	26·5	4·6
Leeds, . . .	12·3	27·2	3·6
Hull, . . .	38·0	24·1	2·8
Newcastle-on-Tyne, . . .	25·5	28·0	6·0
Edinburgh, . . .	40·6	26·9	4·0
Glasgow, . . .	94·3	31·1	6·4
Dublin, . . .	33·1	25·4	4·4
Total, . . .	45·6	25·8	4·7

In 4 towns the density of population above average.

In 3 of those mortality is above average; in 1 below—Birmingham.

In 3 the Zymotic mortality is above average; in 1 below—Birmingham.

In 9 the density of population is below average.

In 5 of those mortality is above average; in 4 below average.

In 2 of those Zymotic mortality is above average; in 7 below average.”

Dr. Grimshaw considers the other points put forward by him

in as full a manner as the scope of the lecture permitted, and concludes his remarks with the following suggestions for the control of preventable zymotics:—

- “ 1. In building new towns or villages to select healthy sites.
- “ 2. Proper drainage, both house drainage and general drainage.
- “ 3. To prevent old ruinous and dirty houses from being inhabited, and to prevent new houses from being constructed so as to be injurious to the health of their inhabitants. Mr. Henderson will point out in his lecture how this is to be effected.
- “ 4. To prevent overcrowding in either houses or districts. This must be accomplished by constant inspection of all houses inhabited by the poor, by the regulation of the width of streets, the promotion of open spaces within towns, and by the breaking up of closed courts, and the making of wide thoroughfares through closed up neighbourhoods.
- “ 6. To promote cleanliness—1st, By the employment of all legal powers to compel and assist in the removal of dirt; and 2nd, To educate the people to believe that ‘cleanliness is next to godliness.’
- “ 7. To provide proper accommodation for the sick at all times, and also during epidemics :—
 - (a.) By proper hospital accommodation at all times.
 - (b.) By proper means of bringing patients to hospital.
 - (c.) By the provision of special hospitals or wards, in connexion with general hospitals, to be used only in time of epidemics.
 - (d.) Refuges where the healthy can be separated from the sick until the sick can be removed to hospital, and the houses or rooms they occupied cleansed and disinfected.
 - (e.) The provision of accommodation for convalescents from zymotic diseases in convalescent homes.
 - (f.) Proper and systematic disinfection of all places where sickness prevails or has prevailed.”

We are afraid it will be long before all or even a large number of these recommendations are carried out. The law is at present sufficient, as Mr. Furlong shows in his lecture, to remedy many of the evils complained of, and, while we are writing, laws are being enacted by the Legislature which should do much towards the promotion of the remedies suggested by Dr. Grimshaw.

The zymotic disease map of the southern portion of the city of Dublin should be of interest, not only to the members of our own profession, but also to the public, and especially (if it will utilize anything) to the Public Health Committee of the Dublin Corporation.

Dr. Hudson's lecture “On Liability to Disease,” or receptivity for disease, as it has been called, comes next in order. Dr. Hudson calls attention to the well known phrase of predisposing and exciting causes of disease, and shows how difficult it is to distinguish

the causes referable to each class. He carefully considers each cause, and from his observations draws the following conclusions:—

- “ I.—That liability to zymotic disease is inherent in our constitution, involved, so to speak, in the function of nutrition.
- “ II.—That it varies in degree in different individuals, and in the same individual at different times, and under different conditions, partly external or extrinsic, and partly internal or intrinsic, some of which are preventable, and others non-preventable in their nature.
- “ III.—That, *ceteris paribus*, this liability is least in those persons in whom healthy blood, healthy tissues, healthy conditions, and a healthy state of the nervous system, constitute a healthy nutrition.
- “ IV.—That it is greatest in those whose blood contains the largest amount of the product of waste of the tissues, or of matters in a state of decomposition introduced into the circulation from without.
- “ V.—That all scientific hygienic measures are based on the power of preserving or restoring the healthy condition of the factors of nutrition, and neutralizing the condition, whether extrinsic or intrinsic, by which the function is impaired or deranged.”

Dr. M'Donnell's lecture on “Antiseptics and Disinfection,” seems rather to be miscalled, the greater portion being taken up with an account of Professor Tyndall's observations on dust, and with the relations between dust and disease. There is, in fact, little about either disinfectants or antiseptics, or their modes of action, in the lecture. The principal attractions of the lecture consisted in the repetition of Tyndall's experiments on dust. The lecture would have been more correctly entitled “Dust and Disease.”

Dr. Mapother's lecture on “Artizan's Diseases,” is an excellent account of our knowledge upon this subject. He divides the diseases of artizans into three classes, as follows:—

- “ 1st. Those due to the entrance of dust into the lungs.
- “ 2nd. Those due to slow poisoning.
- “ 3rd. Those which constrained positions or over-work engender.”

Every various trade or occupation gets its share (though not as much as it deserves) of consideration by Dr. Mapother, who shows an extensive and accurate knowledge of his subject.

Mr. Henderson's remarks "On the Construction of Dwellings with reference to their Sanitary Arrangements," should be read by every one who intends to build a house. It is said "that fools build houses for wise men to *live* in;" but Mr. Henderson's motto would seem to be something to the effect that grasping clever men build houses for unwise, but probably good, men to *die* in. Taking Mr. Henderson's not very extravagant standard that "any dwelling to be healthy must be well drained and dry, must have an ample supply of water, and also be well ventilated and heated," we are much afraid that but few dwellings come up to what he or indeed any one else would style a healthy house. It is not only the dwellings of the poor but also those of the rich which from their construction tend to deteriorate the health of their inhabitants, especially the inhabitants of towns. Mr. Henderson, however, does not neglect the question of the construction of country houses, and indeed takes the "country seat" as the type of house-building, and then makes his modifications to suit town residences, with their limited space for building purposes, but greater facilities for water supply and drainage.

The volume concludes with Mr. Furlong's lecture "On Sanitary Legislation," and we are sorry for the sake of the legislation now going forward that Mr. Furlong's remarks did not see the light at an earlier date, as they would certainly have given many valuable hints to the framers of the various Public Health Bills now before Parliament. Mr. Furlong has to deal with a difficult and not very attractive subject, but nevertheless does not fail to make it interesting. We are bound to say we were not aware that there had been any attempt at legislation against "all who cast annoyances, garbage, entrails, &c., in ditches or rivers" so long ago as A.D. 1388; and it seems in those days to create a nuisance meant something, as the penalty imposed for the foregoing offence was no less a sum than £20! Imagine a modern J.P. fining a person £20 for throwing a dead cat into a river. "About a hundred years later we find an Act to prevent the slaughtering of cattle in cities and boroughs, 'lest sickness might be engendered unto the destruction of the people.'" There were no Local Government Boards or Medical Departments of Privy Council in the fifteenth century, and now, with all these Governmental departments, and Prime Ministers with "policies of sewage," we find London is studded with slaughter-houses; and the *Freeman's Journal* informs us that in Dublin

"slaughter-houses are situated in crowded neighbourhoods." The more sweeping measures of sanitary law owed their origin to panics following upon great epidemics; hence all sanitary legislation has been spasmodic, and the natural result is confusion of the worst description. Mr. Furlong tells us that "in Dublin we have to search for our sanitary law amongst a large variety of local Acts, bye-laws, and regulations, besides about seventeen general Acts."

We cannot follow Mr. Furlong into all the intricacies of legal details, and his proposed remedies for their imperfection, which may be comprised in the one phrase—codification of sanitary law, and without this codification there is little hope for improvement in the administration of the law.

This valuable volume must be considered more as a series of syllabus for many courses of lectures than as a course of lectures itself. If the treatment of the subject were more expanded, an almost complete work on Public Health and State Medicine would be the result.

The pamphlets by Drs. Grimshaw and Maunsell are the result of the recent agitations with regard to sanitary legislation, past and present. The views of these gentlemen are so well known that it is almost unnecessary to refer to them. Both writers build upon the same foundation—namely, a paper which they wrote jointly for the meeting of the British Medical Association at its London meeting last year, and which was on that occasion read by Dr. Grimshaw before the Public Health Section of the Association, and afterwards published in the *British Medical Journal*. This paper again had its origin in a series of letters written to the *Dublin Morning and Evening Mail*, under the signature of "A Member of the Committee of the Dublin Sanitary Association," which *nom de plume* is now acknowledged by Dr. Grimshaw, in the preface to his pamphlet on "Impending Sanitary Legislation for Ireland." Many of Dr. Maunsell's views have also been put forward, from time to time, in his capacity of Secretary to the Irish Poor Law Medical Officers' Association. The mature opinions, then, of Drs. Maunsell and Grimshaw have gradually been developing during years past, after a Darwinian method, and are therefore the more to be respected; and we are glad to find they have been respected by the present heads of the Irish Government, for the Irish Public Health Bill has distinctive marks of the effects of the often-repeated arguments of Drs. Maunsell and Grimshaw. Although the opinions held by these

gentlemen seem to be almost identical, yet there is considerable advantage to be derived from their having put them forward in separate forms. Dr. Maunsell looks at the question of a Public Health Bill almost altogether from the Poor Law medical officers' point of view, whereas Dr. Grimshaw views the question more from a public stand-point, but still with an eye which some have considered too professional. Those who charge the profession with seeking the whole control of the sanitary system of the country should not forget that sanitation simply means the prevention of disease, that the only persons fit to superintend preventive measures are those who have studied the causes and effects of disease, and that lawyers and engineers are necessary agents in the prevention of disease, but only secondary to the primary direction of physicians. It should also be remembered that medical men, in promoting improved sanitation, are really diminishing the source of their own incomes, and therefore their action in this matter is, in the *only true sense*, really disinterested.

The views of Dr. Maunsell are best shown by extracts from his own pamphlet:—

“There can be no doubt but that the discussions which will arise in the course of legislation on these subjects will affect the interests of the medical profession more or less, especially that section of the profession which is connected with the Poor Law Medical Service.”

Dr. Maunsell is desirous of making the Poor Law Medical Service a Civil Service of the State, and, in order to show that the cost (the main objection to such a proposal) will not be excessive, says:—

“According to the last report of the Local Government Board of Ireland, the salaries of the Poor Law Medical Officers amounted in round numbers to £100,000, the cost of medicines and medical appliances to £33,000—total, £133,000; half of this, or £66,000, was paid by Government. Now the cost of medicines and medical appliances might, with justness, be defrayed out of the Poor Rates, as is the rent of dispensaries, books, forms, stationery, printing, fuel, and attendance, &c.; by this method £33,000 a year, now devoted to the purchase of medicines and medical appliances, would be applicable towards the payment of the salaries of the Medical Officers, by which means the increase in the Parliamentary grant would be but about £33,000 per annum, and the decrease in the Poor Rates would be, in round numbers, to a similar extent. This would have a beneficial effect on the rate-payers, as may be

explained by the fact that in the county Donegal, where the valuation is 12s. per acre, the cost of medical relief is 3d. in the pound, and in Belfast, where the valuation is £12 per acre, the cost of medical relief is but $\frac{1}{2}$ d. in the pound, showing how unevenly the cost of medical relief presses upon the rates at present; whilst sickness being a national calamity, the cost of its relief ought to be borne by the nation at large."

There are good reasons why the public are likely to benefit by the transfer of the Poor Law Medical Service to the State, the chief of which are thus stated by Dr. Maunsell:—

"Having thus endeavoured to explain the financial question connected with the consolidation of the Poor Law Medical with the Civil Service, we will pass on to the other points involved in the matter. As to the entrance into the Poor Law Medical Service, the manner in which these appointments are made at present cannot be looked upon with satisfaction, and it may be asserted with safety that the qualifications now required for a Poor Law Medical Officer in Ireland are of a politico-religious rather than of a professional character, and examples are not only numerous but notorious where the best qualified men have been rejected, whilst those possessing inferior qualifications have been selected.

"The apparent remedy for this is admission by competitive examination, as in the Civil Service. The number of Poor Law Medical Officers in Ireland is about 1,000, or about the same number as there are in the army; the annual number of vacancies is somewhat greater than in the army, being, on an average, 70 per annum. Two examinations might be held each year to fill up, say, thirty-five vacancies at each examination."

Some of the grievances under which the officers of the Poor Law Medical Service labour are also referred to by Dr. Maunsell. Although a little out of place in the present enumeration, the two following are too flagrant to pass unnoticed:—

"In the case of vaccination, in Ireland, 1s. is the maximum for each successful case of vaccination, and even that is not payable in every case. In England the minimum fee is 1s. 6d., and at present the fee for each successful case of vaccination is 3s., according to the last report, in addition to gratuities, amounting in the total to a sum little short of the total amount paid for vaccination fees in Ireland.

"Perhaps the most flagrant grievance that has been imposed upon Irish Poor Law Medical Officers is the Dangerous Lunatics Act, which enacts that any Dispensary Medical Officer may be called upon to examine and certify for any person suspected of being a dangerous lunatic '*without fee or reward*'—provision is made for payment for such

cases in the other divisions of the United Kingdom. It is true that this grievance does not affect the great majority of the Dispensary Medical Officers of Ireland, but about 1,000 alleged dangerous lunatics are annually examined by these gentlemen, and nearly one-third of that number come under the supervision of the Medical Officers of one dispensary—namely, the No. 3 North Dublin City District, in which the Dublin Metropolitan Police-courts are situated."

We are afraid that the following statement of Dr. Maunsell's, although strictly accurate, is calculated to put rather too bright a face on the salaries of Medical Officers of Health in England, for in the vast majority of cases these are much under-paid, and many, for all practical purposes, not paid at all:—

"In 1872 the Public Health Act, England, became law, and England and Wales were divided into Urban and Rural districts for sanitary purposes. The number of these districts amounts to about 2,000, and the number of Medical Officers of Health, appointed up to the present, is about 1,000; their salaries as Medical Officers of Health vary from under £40 up to £400 a year and up to £800, and even above that sum, owing to the peculiarities of the English Poor Law Medical system, but in round numbers they may be estimated in the aggregate at £100 a year each."

The following is a very concise account of the present sanitary state of Ireland:—

"What points chiefly to the bad sanitary state of the country is the proportion of deaths caused by endemic zymotics, especially fever and diarrhoea; thus of 87,366 zymotic deaths which are recorded in the return already referred to, nearly a fourth, or 21,895, were caused by fever, and one-eighth, or 10,081, were caused by diarrhoea. It is scarcely necessary, with the late small-pox epidemic fresh in our memories, to refer to the question of the effects of epidemics in Ireland. Small-pox fell so heavily on our Irish towns that, in Dublin, the disease proved more fatal than in Liverpool, and nearly twice as fatal as in London; and in Cork a still higher rate of mortality was reached. Thus the sanitary state of Ireland, as measured by the prevalence of endemic and epidemic disease, is not such as it should be.

"According to the Report on the Status of Disease—Vital Statistics Census, 1871, just published—it appears that, on the 2nd April, 1871, when the sick in Ireland were numbered, 97.5, or close upon 100 persons in every 100,000 of the population, were labouring under some form of zymotic or epidemic disease. One in every 14 of the total sick was affected with zymotic or epidemic disease, and one in every 35 of the

total sick was sick from fever. This cannot be considered to be a satisfactory condition for a rural population to be placed in with regard to preventable disease."

Dr. Maunsell recommends his brethren of the Poor Law Medical Service to contend for the following enactments in any legislative measures for sanitary reform which may be proposed:—

" 1st. The constitution of the Poor Law Medical Service of Ireland into a State Medical Service, on the basis of the Civil Service.

" 2nd. The total payment and the chief control of this Service by the State.

" 3rd. Adequate remuneration for all services rendered to the public by any of the Officers of the Service.

" 4th. Increase of pay by length of service and promotion to the higher offices by selection.

" 5th. The handing over of all Civil Public Medical and Sanitary duties to the Officers of this Service.

" 6th. A certain and substantial scale of retiring allowance in case of retirement from age, infirmity, or loss of health in the Service.

" 7th. A general re-adjustment of the areas of Dispensary Districts, so as to meet the convenience of the sick poor, the public, and the Medical Officers, which would be greatly facilitated by the substitution of a system of Union for Electoral division rating."

Although it may be some time before these points are all gained, yet we see that legislation is certainly tending in the directions indicated as correct by Dr. Maunsell.

Dr. Grimshaw's pamphlet on "Sanitary Legislation" expresses much the same sentiments as those put forward by Dr. Maunsell, and, as we have said before, it is built on similar foundation. The following are the requirements of sanitary legislation for Ireland, as laid down by Dr. Grimshaw:—

" I.—A codification, consolidation, and slight amendment of the existing sanitary laws.

" II.—Uniform authorities without clashing of jurisdiction.

" III.—Convenient areas of administration with easily workable sub-districts.

" IV.—A complete executive organisation.

" V.—Constant supervision by the Central Authority.

" VI.—Security for a certain amount of independence for the local officers of the Local Authorities.

" VII.—All sanitary law should be compulsory except certain permissive powers granted to the Central Authority."

Each of these subjects is treated of separately, and the following organisation proposed for carrying out the provisions of the sanitary laws:—

“ 1. *The Central Authority.*—This must be the Local Government Board, and in Ireland we may be well satisfied with the way in which the Irish Local Government Board has up to the present (under the name of Poor Law Commissioners) discharged its functions.”

The Chief Medical Officer of Health will be the Medical Commissioner of the Local Government Board.

“ 3. *The Rural Medical Officers of Health.*—These, in my opinion, should be Medical Inspectors appointed by the Local Government Board, and should be eight in number for Ireland, supervising the eight districts coincident with the eight registration divisions of the country, having the following areas and populations:—

Divisions	Number of Unions	Area in Statute Acres	Population
1—North Eastern . .	20	2,328,305	1,111,167
2—North Western . .	17	2,392,501	526,339
3—Eastern . .	19	1,993,016	787,416
4—North Midland . .	18	2,019,408	511,940
5—South Midland . .	17	2,361,709	448,840
6—Western . .	31	4,088,459	766,202
7—South Eastern . .	16	1,826,172	451,483
8—South Western . .	25	3,313,071	808,990
Total . . .	163	20,322,641	5,412,877

“ The Public Health Inspector should also be the Poor Law Medical Inspector, and his duties should run parallel with, but not interfere with the non-medical inspector. It should be the duty of the Medical Inspector to receive the reports from all the local Health Officers and take action upon the same; he should also supervise the general sanitary condition of his district, and, conjointly with the non-medical inspector, conduct such local inquiries as the Local Government Board may direct into complaints against, or disputes between local authorities. He should also exercise constant supervision over the local Health Officers, and give them advice and assistance in all difficult cases.

“ 4. *Urban Medical Officers of Health.*—These should be appointed only for large towns, and for districts constituted by the Local Government Board in the manner directed. The Urban Health Officer should not engage in private practice, but might with advantage be officer of a public

hospital or professor in a medical school, thus keeping himself '*au courant*' with the medical science of the day.

"5. *Local Medical Officers of Health*.—These must be the Dispensary Medical Officers, each for his own district, and the local authorities should be compelled to employ the Dispensary Medical Officers for this purpose, and should not be permitted to appoint any other person as Local Medical Officer of Health. Thus each country union would have from four to six Health Officers.

"The utilisation of the present Poor Law Medical Service for sanitary purposes will be the cheapest and most efficient mode of working a sanitary organisation. It will be the cheapest, because the dispensary medical officer's duties of necessity bring him into contact with all matters with which a health officer must make himself acquainted. His work will therefore be less in proportion than that of a special officer appointed for the purpose, and he will therefore be fairly remunerated at a salary which must be insufficient to secure the services of a separate and efficient Local Medical Officer of Health. The Dispensary Medical Officer will be the most efficient Health Officer, because as registrar of births and deaths, public vaccinator and medical attendant on *the poor*, among whom epidemics first make their appearance, he will have the earliest knowledge of the outbreak of epidemics, and be able to take immediate measures to prevent their extension.

"6. *Inspectors of Nuisances*.—These, I think, should be the Relieving Officers of the Union, under the direction of the Dispensary Medical Officers.

"7. *Superintendent Inspectors of Nuisances*.—Although these officers do not seem an absolute necessity, yet I believe it would tend much to the efficiency of the inspection if such officers were attached, one to each of the Inspectors in rural districts, and one to each of the urban Medical Officers of Health. The duties of these officers would be to supervise the Local Inspectors of Nuisances, and also to act as clerks to the Medical Inspectors and urban Officers of Health."

Seldom have views met with more general assent than those put forward in this little pamphlet. The medical journals have unanimously pronounced in their favour, as have also a considerable number of the daily journals, without distinction of politics.

Dr. Grimshaw's remarks on the Public Health Bill are, as might be expected, directed against all those clauses which do not favour his own plans, as laid down in his previous pamphlet. His two main objections seem to be against the constitution of numbers of small town sanitary authorities, who have neither the will nor the means to enforce the provisions of the sanitary acts. The state of these urban sanitary districts is as follows:—

"The Bill will constitute exactly 113 urban districts, many with small populations, having authorities with incomes totally inadequate to bear the necessary expenses of enforcing the sanitary law to be provided under this bill. The populations now stand thus:—Under 2,000, eleven towns (of which three have populations under 1,500); from 2,000 to 5,000 fifty-three; from 5,000 to 10,000, thirty-two; over 10,000, seventeen. But the smallness of the population is not the only reason why the districts are unsuitable. The authorities do not possess the pecuniary means of keeping up a sanitary staff and sanitary *plant*; for of 111 towns for which returns are published, seventy-seven, or more than two-thirds, have incomes of under £1,000 per annum at their disposal, nine of these having incomes of less than £100 per annum."

Dr. Grimshaw thinks also there is not sufficient power given to the central authority, and there is also a want of supervision by professional inspectors.

We find that many of Dr. Grimshaw's objections have been removed, either by altering the Bill as it stood, or by assurance from Government that proper measures will be taken to secure serviceable and efficient working of the Act by a strong central administration.

Code of Regulations for the Guidance of the British Medical Department in the Bengal Presidency. Compiled, under the Orders of Government, by Staff-Surgeon T. M. BLECKLEY, M.A., M.D., LL.B., Secretary to Inspector-General of Hospitals, Her Majesty's British Forces. Calcutta. 1873. 8vo, pp. 815.

IN reviewing this work we are at a loss whether we should admire more the patience and skill of the compiler or the unimpeachable manner in which he has performed his task. The vast amount of labour indicated in the eight hundred pages which make up the "Code" will be inadequately rewarded by the unanimous approval with which the appearance of the book will undoubtedly be received.

The medical code supplies a want which in India had long been felt. For many years the old regulations had practically become obsolete, and medical officers, on arriving in the country, were generally completely at sea with regard to any authentic information upon medical, sanitary, and statistical matters.

Dr. Bleckley devotes the first chapter to the subject of the

administration of the British Medical Service. He then considers the duties and relations of executive officers of the Army Medical Staff and of regimental medical officers. Chapters IV. and V. contain the regulations and duties in connexion with the movement of troops by land and sea. Chapter VI. deals with convalescents and convalescent depots; chapter VII. with invaliding. Perhaps the most important chapters are those which relate to sanitary regulations in cantonments, and during the prevalence of epidemic cholera (VIII. and IX.); to hospital establishments, *stoppages*, records, and returns (XIV. and XV.); and to hospital supplies (XVI.) We should not omit to mention, in this too cursory notice, the very comprehensive index which concludes the volume.

These headings will give some idea of the scope of this work, which will be indispensable to medical officers proceeding to India, and in the compilation of which we consider that Dr. Bleckley has conferred a lasting service on the army in all its branches.

A Plea for Liberty of Medical Teaching. By JOHN T. ARLIDGE, M.D. and A.B., Lond.; F.R.C.P.L.; Physician to the North Staffordshire Infirmary. Newcastle-under-Lyne: C. Hickson. 1874. Pp. 19.

In the form of a letter addressed to the General Medical Council, Dr. Arlidge has stated in this pamphlet a series of very strong arguments in favour of the recognition of provincial institutions, as suitable for the purposes of medical education, within—be it added—certain limits. With the principle that medical knowledge is attainable only where a hospital and school organisation co-exist “are associated (1) the traditional belief that efficient means of instruction and qualified teachers are to be found only in metropolitan towns, and (2) the fallacious notion that attendance upon lectures and the acquisition of knowledge are equivalent conditions.” As a consequence of this, our provincial hospitals are neglected as places of learning, and parents have to send their sons at great expense to some distant “recognised” school for the whole of their undergraduate career. Students enter the wards of the metropolitan hospitals ignorant of the veriest rudiments of clinical knowledge, while the absence of pupils acts detrimentally on the medical staff of the county infirmaries. The old system of

apprenticeship, under which the beginner spent a considerable period in the surgery of the general practitioner, or in a county infirmary, before entering on his city educational career, has been superseded by the system of "recognised" schools.

But Dr. Arlidge does not stop at clinical medicine and surgery. He extends his arguments to the collateral sciences. Surely, botany can be more rationally learned in the open country than within the walls of a city lecture-room. As to chemistry, the demands of art and manufacture have placed efficient teachers and laboratories in all the chief cities in the kingdom. The elementary truths of natural history can also find expounders in every centre of population, and the same remark applies to *materia medica*. Lastly, the elements of histology and anatomy may be learned in the country—the amended Anatomy Act making it possible in most infirmaries legally to prepare and preserve "subjects," or "parts," for dissection.

All this applies to the preliminary career of the student, for Dr. Arlidge deprecates the formation of small local schools, and insists that, for almost obvious reasons, a considerable portion of the medical career of every student should be spent in one of the capitals of the empire. What he wants is something analogous to the *primary* and *secondary* schools so long established in France. He contends that the elevation of county infirmaries to the position of "secondary" medical schools—say for the first two years of the student-life—would tend to promote the *general education* of students, for they could still devote part of their attention to classes contributory to general information and culture.

In an "Appendix" Dr. Arlidge expresses himself as strongly opposed to the necessary connexion in London of a school to a hospital—a principle which, he believes, has injured the education of the profession. In the event of the recognition of provincial institutions as "secondary" schools, students should be permitted to present themselves for a first medical examination, prior to their removal to a metropolitan or final school. A note is also appended referring to the "Report of the Committee of Reference for an Examining Board in England," which lessens the burden of lectures, admits the capacity of other institutions than recognised hospital schools to impart medical and collateral instruction, and permits students to acquire a knowledge of chemistry, botany, and *materia medica* where they conveniently can.

We have given an analytical sketch of the contents of Dr. Arlidge's pamphlet, because we believe that in it are reflected the views of a most distinguished body of medical men—the members of the staff of our provincial hospitals and county infirmaries. But further, because Dr. Arlidge has, in our opinion, anticipated a reform in our educational machinery which will before long become inevitable. The days of a multiplicity of lectures are almost ended. The tendency is towards the substitution of a conjoint examination for the notorious "nineteen portals of the profession;" and, when once that substitution has been effected, it will matter little how, where, or when the student has acquired his knowledge, provided it be of a sufficient degree of merit to justify his passing the examination. From this point of view Dr. Arlidge's opinions are philosophical, and will repay the attention of all who esteem the general welfare of the profession above the narrower and local interests of the school.

Diseases and Injuries of the Eye: their Medical and Surgical Treatment. By GEORGE LAWSON, F.R.C.S., &c. Second edition, with 88 wood-cuts. Henry Renshaw, 365, Strand, London. 1874.

WE welcome with pleasure a second edition of Mr. Lawson's practical and valuable manual, the original of which we noticed at length, and very favourably, some years ago. The additions to the present volume consist in articles on conical cornea, cyclitis, intra-ocular tumours, venous nævus of the orbit, herpes zoster frontalis, xanthelasma, tatooing the cornea—all subjects of great practical importance.

Transactions of the American Otological Society. Sixth Annual Meeting, Newport, R.I., July 16, 1873. Boston: Alfred Nurdze & Son.

THE more we read the reports of the American special societies, the more we feel the want of analogous societies in Great Britain, at the meetings of which specialists might, with advantage to science and their art, discuss the various topics engaging their particular

attention. Nothing could tend more to the advancement of knowledge, and to the suppression of empiricism and quackery, than such papers as are contained in the transactions before us and the debates thereon. Dr. Burnett's report on the progress of otology is, in especial, most interesting and instructive.

The Medical Adviser in Life Assurance. By EDWARD HENRY SIEVEKING, M.D., F.R.C.P.; Physician to St. Mary's and the Lock Hospitals; Physician-Extraordinary to the Queen; Physician-in-Ordinary to the Prince of Wales, &c. London: J. & A. Churchill. 1874. 8vo, pp. 184.

THIS is a thoroughly good book, and in it Dr. Sieveking treats of a subject which, considering its practical importance to medical men, had previously received but scant attention from authors.

"Every medical man," he writes in his Preface, "in the course of his professional career, is now-a-days more or less frequently brought into contact with insurance business, and questions are submitted to him in connexion with life policies, the answers to which often demand a special kind of knowledge, not always to be found in the ordinary handbooks of medicine, nor suggested by the clinical study of disease. . . . It is the object of the following pages to collect and place before the reader, in a concise and easily available form, such facts and figures as appear to be required by the physician, to enable him to arrive at a correct estimate of the many interesting contingencies upon which life insurance business rests."

Chapter I. contains much useful information on the subject of life insurance generally, and in the subsequent chapters those features in the constitution, sanitary condition, family predisposition, and mode of life of applicants for insurance, to which medical men have to pay special attention, are pointed out. The chapters headed "The Duties of the Medical Officer" and "Hereditary Influences" are especially deserving of an attentive perusal.

In these days of preventive medicine it will not be foreign to our purpose to quote a striking testimony in its favour, at page 108:—

"In regard to life insurance, it is satisfactory to know that there is here, as elsewhere, an improvement in the prospect of life, and it may be

well to take the present occasion of bringing before the reader a little further evidence of the real improvement in sanitary matters, as shown by the influence of modern civilisation upon longevity. A reduction of the rates of insurance has already resulted from the amelioration that has been demonstrated, and it is reasonable to assume that a further reduction, compatible with safety, and, therefore, beneficial equally to insurer and insuree, will be effected. Scurvy, dysentery, ague, may in England be regarded as enemies of no account, when we consider their former ravages; while syphilis, gout, scrofula, and its congeners, have abated much of their severity under the wiser measures that we now employ to counteract them."

Chapters VI. and VII., on "The Insuree's Liability to Disease," are full of instructive matter. In chapter VII. the author includes amongst the diseases, which interfere with the acceptance of a life, a disorder not recognised by the Registrar-General as a cause of death, though it indicates serious disturbance in the assimilative process, and is frequently overlooked in private practice. It is "azoturia"—a malady characterised by the discharge of an excess of urea in the urine, and often the only tangible symptom in vague forms of gastric derangement and nervous disease.

The last chapter deals with the question of the medico-legal aspects of life insurance, and worthily concludes this well-written, unassuming, eminently practical work.

Dictionary of Elevations and Climatic Register of the United States. By J. M. TONER, M.D. New York: D. Van Nostrand. 1874. Pp. 126.

WITHIN the compass of some 90 pages the author has collected the elevations above sea-level, the latitude and longitude, and the chief meteorological conditions of a vast number of places in the United States of North America. To those who propose to investigate the influence of topography or of altitude in determining the prevalence of various diseases, Dr. Toner's "Dictionary" will be indispensable. We trust that Mr. Alfred Haviland, or some other competent authority, will shortly compile a similar Dictionary of Elevations for the British Islands.

PART III. HALF-YEARLY REPORTS.

REPORT ON MATERIA MEDICA AND THERAPEUTICS.*

By WALTER G. SMITH, M.D., Dublin; Fellow and Censor, K.&Q.C.P.I.; Examiner in Materia Medica, Q.U.I.; Assistant-Physician to the Adelaide Hospital.

- ART. 7. Amenorrhœa, electricity in.
,, 9. Carbolic acid.
,, 13. Chloral.
,, 14. Croton-chloral.
,, 12. Elimination of drugs.
,, 4. Ether and chloroform
,, 10. Lead poisoning.
,, 2. Nitrate of lead in onychia.
,, 11. Opium, alkaloids of.
,, 1. Pepsin.
,, 5. Phosphorus.
,, 6. Purgatives, action of.
,, 3. Purpura from Friar's balsam.
,, 8. Syphilis, treatment of.

1. *Pepsin*.—Dr. Schacht has experimented on pepsin and he condemns the administration of it as altogether unscientific. He maintains that pepsin is never entirely absent from the stomach, that it is supererogatory to administer it, and that, in any case, wine or alcohol is the worst possible vehicle for its solution. It is probable that the tannin of wine almost entirely hinders the catalytic action of the pepsin, and it is to be understood that free

* The author of this Report, desirous that no contribution to the subjects of Materia Medica and Therapeutics should remain unnoticed, will be glad to receive any publications which treat of them. If sent to the correspondents of the Journal they will be forwarded.

hydrochloric acid is always necessary to its action.—(*Brit. Med. Journ.*, Dec. 27, 1873, from *Chem. and Druggist*.) Compare Scheffer's observations, *Report*, August, 1873.

2. *Nitrate of Lead in onychia maligna*.—Mr. Howard gives another case in confirmation of the value of this remedy (see *Report*, February, 1874). A girl, aged nine, was affected with severe onychia of the thumb for many months. She had been under surgical treatment without avail, but by the local use of the powdered nitrate of lead she was cured in a fortnight. It should be mentioned that she also took cod-liver oil and iron wine.—(*Brit. Med. Journ.*, Jan. 17, 1874. See also a review of Vanzetti's monograph on onychia, *Med. Times and Gaz.*, Feb. 28, 1874.)

Mr. Fairlie Clarke reports three cases of this disease treated by the above salt, and thinks that, on the whole, having regard to the severity of onychia maligna, and the difficulty of treating it successfully by the ordinary lotions or ointments, this remedy is a very valuable one.—(*Lancet*, May 23, 1874.)

3. *Purpura Urticans from inhalation of Friar's balsam*.—A middle-aged man, who suffered from some organic disease of the larynx, was advised to inhale the vapour of 3*i.* of Friar's balsam (Tinct. Benz. Co.) two or three times a day. He had most effectually acted upon this advice, and one evening he was suddenly attacked by an unusual and curious eruption over almost the entire surface of the body which Dr. T. Fox pronounced to be *purpura urticans*. The skin was swollen, and on the trunk and arms every part of the surface was closely studded with dark purpuric spots, with accompanying claret-coloured hyperæmia. About the legs the eruption was made up of circular patches, from the size of a three-penny piece to that of a shilling, the central part being purpuric and the circumferential part having all the characters of a wheal. Within twenty-four hours the eruption began to fade and subsided altogether in a few days.—(*Lancet*, Feb. 7, 1874.)

4. *Ether and Chloroform*.—In the *Practitioner*, April, 1874, Dr. Hake narrates some important results attained by Professor Schiff, and which he himself witnessed. One of the Professor's most weighty conclusions is this:—"We are able to say that, in the present state of science, the medical man is *responsible for every case of death occasioned by the application of ether*, because a careful

watching of the respiration is capable of preventing death, whilst the lethal effect of chloroform depends in part on individual predisposition which the physician is unable to recognise." Ether *always* paralyses the respiration first, then the vessels, heart, and motor nerves, while chloroform sometimes produces paralysis of the vessels in the first instance, then of the respiration, and finally of the heart—*i.e.*, the result is variable. With chloroform we are never able to say what the limit of it in the inspired air is, which affords us a certainty of the animal being restored. Schiff considers that chloroform should be banished from practice as an anæsthetic agent, except in cases in which extraordinary resistance to the effects of ether shows itself, in which instances it might be allowed to mix a little chloroform with it in order to produce the commencement of anæsthesia, which should afterwards be continued with pure ether.

5. *Phosphorus.*—The internal use of phosphorus is at present attracting a good deal of notice, and its admitted tendency to irritate the alimentary tract has given rise to a number of formulæ for its exhibition, with the proposed object of avoiding this drawback.

Some few years since Dr. Gueneau de Mussy advocated the employment of the solid phosphide of zinc, as agreeing better with the stomach than any other preparation of phosphorus, and this compound has been adopted by Dr. Hammond, of New York, and by Dr. Routh, of London. This phosphide, although insoluble, is easily assimilated, and may be given in doses of 1 gr. three times a day. But, since it acts only after decomposition by the acids of the stomach, it follows, as Dr. Thompson points out, that many doses might accumulate, and remain unchanged, if the secretions of that organ were alkaline. If the accumulations were then suddenly brought into contact with acid, symptoms of poisoning would occur—an accident which happened in a case noted by Professor Gubler. The obvious and very necessary precaution consists in the use of an acidulated tonic with each dose of the drug, or the dietetic employment of lemonade during the medication. Dr. Routh further recommends the chloro-phosphide of zinc, prepared by bringing pure hydrochloric acid into contact with phosphorus and arsenic in a fine state of division. It is a clear yellowish green solution, of pleasant taste, and contains 10 grs. of arsenic and $16\frac{1}{2}$ grs. of phosphorus to the ounce. The dose is from 3 to 5 m. Dr. Ashburton

Thompson's formula for an alcoholic solution of phosphorus was given in the last *Report*, and he has remarked that the fluctuations in popular favour which the history of phosphorus presents, suggest that an element of danger attended the very great remedial properties it was found to possess. Moreover, others beside himself had found that a dose of phosphorus, poisonous when dissolved in oil, might be far exceeded if dissolved in ether and alcohol; while the excellent results obtained with the latter preparations testified to their activity. A male adult took half a grain of phosphorus in ether every twenty-four hours for nine days, and yet died of less than 1 gr. dissolved in oil, and taken during thirty-five hours (Solin.) Phosphorised cod-liver oil, according to Dr. Thompson, may be given with the same safety as phosphorised ether or alcohol, and in the same doses, whereas the vegetable oils (almond or olive) generally employed are dangerous solvents, owing to their ready absorption of oxygen, and consequent partial oxidation of phosphorus, probably into hypophosphorous acid. The solutions of phosphorus in vegetable oils do not, therefore, afford a safe means of exhibiting free phosphorus. Dr. Thompson states that these rules, though simple, had never been formulated before, and he believes that ignorance of the facts on which they are founded had converted on free phosphorus a reputation for treacherously poisonous qualities, even in remedial doses, appertaining, in reality—in the case of phosphorised vegetable oil at least—to an unsuspected admixture of combined oxidised phosphorus.—(*Pharm. Journ.*, May 30, 1874.) A very complete paper by Dr. A. Thompson "On the Medicinal Dose of Free Phosphorus" is published in the *Med. Times and Gaz.*, February 28, and succeeding numbers.

In the treatment of *neuralgia*, Dr. Bradbury has, on the whole, met with considerable success from the use of phosphorus in capsules, and he relates two cases of trigeminal neuralgia, in which a rapid cure seems to have been effected, in one case by two doses, $\frac{1}{10}$ gr. each, of phosphorus.—(*Brit. Med. Journ.*, March 14, 1874.)

6. *Purgatives, action of.*—Dr. Lauder Brunton has made some interesting experiments in repetition of Moreau's observations confirmed by Vulpian, and concludes, in opposition to the experiments made with Thiry's fistula, that hydragogue purgatives (croton oil, elaterium, gamboge, and sulphate of magnesium) do, undoubtedly, cause a copious *secretion* from the intestine, and not a mere transudation, as well as accelerate peristaltic

movements. Some of the most eminent German pharmacologists seem to regard increased peristalsis as the sole, or almost the only, cause of purgation, and deny that there is any increased flow of liquid from the intestinal walls.—(*Practitioner*, May, 1874.)

7. *Amenorrhœa, electricity in.*—Dr. Althaus states that catælectrotonus of the ovaries (*i.e.*, negative pole of constant current) is, in his opinion, the most effective mode of applying electricity for amenorrhœa due to a torpid condition of the ovaries—*e.g.*, from fright, anxiety, chill, &c. He relates an interesting case in illustration of a lady, aged thirty-seven, in whom, subsequent to her first confinement of a still-born child, the catamenia ceased for nearly three years, and she was pronounced incurable by high authority. Dr. Althaus placed the negative pole of the (Daniell's) battery, 50–60 cells, alternately to the right and left ovarian region, and put the positive pole alternately to the lumbar spines and to the os uteri, by means of an insulated sound, for about fifteen seconds each time. After three series of applications within six months the menses returned, and at the second period went on abundantly for four days.—(*Med. Times and Gaz.*, March 14, 1874.)

8. *Syphilis, treatment of constitutional.*—From various and prolonged comparative trials in hospital and private practice Professor Zeissl concludes that preparations of iodine, under a suitable regimen, will disperse the early manifestations of syphilis, or so abate them that a small number of mercurial frictions complete the cure, which, not being followed by relapse, must be regarded as definitive. An early mercurial treatment will remove the initial symptoms more rapidly than iodine, but the consecutive symptoms quickly yield to iodine. Affections of the mucous membranes of the mouth and pharynx yield much more rapidly to iodine than to mercury, requiring at most slight cauterisation sometimes.

Iodoform is of great utility as a local application in torpid syphilitic ulcers, especially in indolent bubo, and, given internally, 2 or 3 grs. in pill, it proves very useful in syphilitic neuralgia.—(*Med. Times and Gaz.*, January 31, 1874, from *Wien. Med. Wochenschr.*, November, 1873.)

In the latter affection Dr. Hammond strongly recommends bromide of calcium, and he has found it to succeed when iodide of potassium and mercury have completely failed. Dose 15–20 grs. in water.—(*Amer. Journ. of Syphilogr.*) See also an

admirable paper by Mr. Jonathan Hutchinson, "When and How to use Mercury in Syphilis," fully given in *Lancet*, Jan. 17 and 31, 1874; abstract in *Brit. Med. Journ.*, Jan. 24, and some further remarks by him on the same subject, *Brit. Med. Journ.*, Feb. 28. On the *subcutaneous injection* of mercury, see an elaborate paper by Dr. Cullingworth, *Lancet*, May 16 and 23, 1874. The salt he finally selects for this purpose is mercuric cyanide in aqueous solution, with a little glycerine.

9. *Carbolic acid*.—The employment of carbolic acid in hygiene and therapeutics, and the numerous cases of poisoning by it inadvertently, give an importance to its analytical and toxicological history. The test mentioned in the *Br. Ph.* of colouring blue a deal shaving exposed to the air after being dipped in hydrochloric acid is most fallacious, for not only do creasote and cresylic acid react similarly, but it has also been shown by several observers that a chip of deal may be coloured blue or green by the action of hydrochloric acid alone. In the examination of organic matters, when the carbolic acid has been separated by distillation with sulphuric or phosphoric acid, it may be recognised in the distillate by the following tests, some of which have been mentioned in previous *Reports* (Feb. and Aug., 1873):—

(a.) Blue colour with *aqueous* solutions of ferric salts. By this means 1 part in 2,000 can be detected, but it is to be remembered that other bodies—*e.g.*, tannic acid and salicylic acid—also develop a violet or greenish-blue coloration with ferric salts.

(b.) Blue colour upon the successive addition of ammonia and a little chloride of lime. Aniline is first produced, and from it is derived the blue compound, azulmine. This test will detect 1 part in 3,000; cresylic acid and thymic acid (thymol), however, also assume more or less of a blue colour under similar conditions.

(c.) Yellow colour when warmed with nitric acid, owing to the formation of picric (carbazotic) acid. The addition of potash gives a yellow, crystalline precipitate. Although 1 part of carbolic acid in 6,000 answers to this test, it is not absolutely specific, because many other substances—*e.g.*, salicin, indigo, silk, wool, aloes, skin, hair, &c.—also develop picric acid when treated with nitric acid.

(d.) Landolt's test—viz., bromine water, which occasions a yellowish white precipitate of tri-bromo-phenol. This test is delicate, but is rather a complementary than a characteristic one,

and several of the alkaloids, as well as the homologues of carbolic acid, give rise to similar precipitates. But the tri-bromo-phenol is distinguished from the other precipitates by being insoluble in acids, and soluble in alkalies, ether, and absolute alcohol.

(e.) A red colour developed by pouring a little of the aqueous solution of carbolic acid cautiously on the surface of sulphuric acid in a test-tube. Or, a brown colour, by agitation with oil of vitriol and a little bichromate of potassium. According to Pollacci, these re-actions are sensitive to 1 part in 2,000 and 1 part in 3,000 respectively.

(f.) Jacquemin has lately discovered a very delicate test, which he estimates as capable of detecting 1 part in 66,000. Upon adding to carbolic acid an equal weight of aniline, and then of hypochlorite of soda (or chloride of lime), a deep blue solution of erythrophenate of soda is produced, remarkable for the purity and persistence of its colour. This blue colour is changed to red under the influence of acids, in consequence of the setting free of erythrophenic acid, the blue reappearing when the acid is saturated by an alkali. Organic matters, such as alcohol, soap, fatty matters, &c., provided they are colourless, do not interfere with the working of the test.

This method, with suitable precautions, can be successfully applied to the detection of carbolic acid in blood, milk, urine, and the solid viscera.—(Pollacci's paper, *Journ. de Pharm. et de Chim.*, Mai, 1874; Jacquemin's paper, *Pharm. Journ.*, April 25, 1874, from *Rép. de Pharm.*)

A true *antidote* to carbolic acid remains yet to be discovered, and some recent experiments of M. Galippe go to discredit the value of saccharate of lime, which has been specially recommended by Kunde, and, from experiments on dogs, he is inclined to place more reliance on olive oil (Crace Calvert).—(*Journ. des Conn. Méd.*, No. 1, 1874). Dr. Hüter advocates the *subcutaneous injection* of a solution of carbolic acid (1 part in 50 of water) in certain local affections—*e.g.*, hyperplastic granular synovitis (white swelling) of the knee, subacute glandular swellings, acute phlegmon, and traumatic erysipelas. From 0·3 to 0·6 gr. of the carbolic acid is injected at a time, and, strange to say, the injection is attended with so little pain that it does not annoy even young, sensitive children. No symptoms of poisoning, or darkening of the urine, were observed.—(*Brit. Med. Journ.*, Feb. 14, 1874, from *Centralbl.*, Jan. 24.)

10. *Saturnine poisoning from urethral injections of subacetate of lead.*—Dr. Faivre was lately consulted by a young man, aged twenty-three, who was suffering from general *malaise*, head-ache, and sharp abdominal pain. The tongue was clean, but obstinate constipation had existed for three days, the duration of his illness. Dr. Faivre did not suspect the cause until he found that pressure on the abdomen, which was much retracted, gave relief, and, on examining the gums, a well defined blue line was noticed. None of the ordinary sources of lead poisoning were present in this case, but, upon inquiry, it appeared that the patient was labouring under a gonorrhœa of several weeks standing, for which a druggist had prescribed injections. The injection liquid was analysed and found to consist almost entirely of solution of subacetate of lead. Under suitable treatment the symptoms slowly passed away, but, even after six weeks, the gingival blue line had not completely faded.—(*Rev. de Thér. Méd.-Chir.*, No. 6, 1874.)

11. *Alkaloids of opium.*—M. Laborde insists, both on experimental and clinical grounds, that we should, in practice, so far as possible, substitute the alkaloids of opium for the crude drug. Following C. Bernard, he regards the soporific and sedative virtues of opium as belonging entirely to morphia, narceia, and codeia. Of these, narceia and morphia are to be preferred to codeia, which is liable to act in a cumulative manner as a convulsant poison. In M. Laborde's opinion, it is unquestionable that narceia, by reason of its relative harmlessness, and its special aptitude of inducing tranquil sleep, undisturbed by dreams, and not succeeded by headache, or uneasiness of any kind, should, clinically, hold the first place among the opium bases, and it is to be regretted that its high price stands in the way of its more general use. One of its chief advantages is its applicability to young children and infants, on whom it exerts its influence readily, certainly, and with safety. In whooping-cough, in particular, it completely suppresses, or, at least, always mitigates, the distressing nocturnal fits of coughing. M. Laborde strongly recommends the administration of morphia and narceia by enemata and suppositories, and, with young children, the latter form proves very convenient.—(*Journ. des Conn. Méd.*, No. 4, 1874.)

12. *Elimination of drugs.*—In the *Rep. de Pharm.*, 1873, Dr. Bordier communicates an interesting paper on this subject, condensed

from M. Gubler's lectures. The entire article is well worth reading, and we can reproduce here only its leading arguments. The generalisation to which the paper leads is this, that, speaking broadly, the therapeutic activity, or *moment*, of a drug commences when the drug is deposited by the blood in the histological elements of the tissues, or in the secreting and excreting organs, which open upon a mucous surface, and there discharge, along with their proper secretion, the drug which they eliminate. In other words, pharmacodynamics may be reduced to a purely topical action, for the general effect of a drug upon any system is only the resultant of the local actions which it exercises upon the histological elements of the organs composing the system.

Once a drug is introduced into the body it becomes part of the organism, and the one re-acts upon the other through the intervention of the incessant molecular disintegration and renewal which take place. If the remedy be introduced by the natural channels it will undergo, in the digestive tube, the influence of acids, alkalies, alkaline chlorides, of oxygen, and of sulphuretted hydrogen. Later on, when it has passed by absorption into the circulation, it meets with an albuminous medium—the blood, the action of which is all-important. The albumen then exercises its solvent powers and forms, with salts insoluble of themselves, *metallic albuminates*, sufficiently soluble and stable. At the same time, it is this albumen which puts an obstacle in the way of the molecular changes which would otherwise result from the play of affinities among the substances which it entangles. Thus, blood to which some lactate of iron has been added, conceals this salt so effectually that prussiate of potash fails to detect the iron.

It is owing to this albuminous medium, in which substances are, as it were, on neutral ground, that certain acids can circulate side by side with the alkali of the blood without combining with it; witness tannic and gallic acids which, after having traversed the circulation, pass out in the urine in the same chemical condition as they entered the organism. Most of the substances introduced into the blood circulate *incognito*, under a sort of albuminous mask, although some bodies are not rendered latent, but, like prussic acid, attach themselves to the hæmo-globin of the corpuscles. Some compounds are oxidised—*e.g.*, alkaline sulphides are transformed into sulphates, others are reduced, *e.g.*, ferric sulphate, red prussiate of potash, and iodate of potash. It follows, then, during its career in the circulation, a remedy does not, as a rule, influence the

organism generally, it simply travels towards its focus of action, which commences at its exit from the albuminous medium which imprisoned it. The blood having eliminated the drug, the tissues take it up, and M. Gubler has formulated a law that substances, taken into the organism, tend to rejoin their similars, or analogues, among the immediate normal principles. Thus, bodies, such as sulphur, phosphorus, iron, and manganese, which have their representatives in the economy, gravitate towards the sulphur, phosphorus, &c., while those which have only analogues in the economy go to these—*e.g.*, selenium goes to the sulphur of the body, arsenic to the phosphorus, bromine to the chlorine. The more closely analogous remedial agents are to the chemical principles diffused through our organism the better tolerated are they by the economy. Whenever a drug cannot meet with its similar within the body, it appears that it cannot be assimilated, and must, consequently, be thrown off from it. If, then, we seek for permanent results to modify the organism slowly—in a word, to follow an *alterative* line of treatment—it is essential that the drug should, for a long time, form an intimate part of the organism. Hence, it will be necessary to adopt a substance similar, or, at least, analogous to the components of the body, and, accordingly, the salts of soda will be preferable to those of potash. If, on the contrary, we desire rapidly to affect the organism, what we require is a drug which, speedily eliminated, need not be assimilated by the system, but will pass out by the emunctories. Thus, nitrate of potash is more diuretic than nitrate of soda. It is further important to know by what channel any given substance is eliminated. For example, remedies which are eliminated in the cerebro-spinal fluid, a non-albuminous liquid, at once reach the nervous centres, and exert on them an immediate action, which mere imbibition serves to explain.

It is worth while to observe the chemical composition of the secretions, for a drug is eliminated in whatever channel or channels it meets with similar company.

1. *Saliva and pancreatic juice.* Neutral salts, sulpho-cyanide of potassium, soda.

2. *Bile.* Soda, fatty acids, neutral fatty bodies, cholesterin, resin, ferruginous pigment.

3. *Urine.* Neutral salts, acids, water, fatty matters, ferruginous pigment.

4. *Milk.* Casein, lactose, volatile fatty acids, butter, neutral salts.

5. *Perspiration.* Neutral salts, volatile acids, fatty acids.

6. *Pulmonary exhalation.* Gases and vapours.

To give an example:—Turpentine is split up within the system, and, to satisfy the necessities of its elimination, the volatile oil escapes by the lungs, the resin by the bile and urine, where it can easily be detected. Cubeb and copaiba are in the same position, and resin of copaiba answers accordingly in the treatment of genito-urinary diseases, with the advantage of not betraying its presence by the pulmonary elimination of the volatile oil. On the other hand, the oil of eucalyptus, which is little liable to oxidation, has the recommendation of being exhaled chiefly by the respiratory passages, and so modifies them in its exit, when they are the seat of a chronic catarrh. Although it is not easy in every case to determine precisely where the change takes place, this occurs only at the exit of the drug, whether combination has occurred, as with tartaric, oxalic, and benzoic acids, which pass out as soda-salts, or oxidation, as with sulphur, or reduction or decomposition. Lastly, some bodies, at their point of egress, are found in a chemical condition as yet undetermined—*e.g.*, arsenic, antimony, tin, bismuth, lead, mercury, silver, and gold.

In the domain of pathology we daily see the field of the neuroses growing smaller before the progress of morbid anatomy, and we learn that as there is no physiology without healthy organs, so there is no pathology without alteration of organs, albeit in a degree inaccessible to our senses. We should habituate ourselves to the conception that there is no therapeutic action without a molecular change, chemical or not, produced by the remedy on the ultimate elements of the tissues.

Even already pigmentation and destruction of the nerve-cells and their processes have been made out in poisoning by nicotin, and an alteration of the myelin in poisoning by opium (Roudanowski). Lesions, as yet unknown to us, doubtless exist, and possibly these lesions are only different molecular states. In every case the therapeutic element is deposited by the blood in contact with the histological element, and it is much to be wished that we were as well informed of *cellular therapeutics* as we are of cellular pathology. Hitherto inquiry has been mainly directed to the channels of introduction of drugs. But it is even more important to know the avenues of elimination, and, if we would add a pendant to the saying, *corpora non agunt nisi soluta*, we might almost venture on the assertion—*corpora non agunt nisi excreta.*

13. *Chloral.**—(a.) *Properties of.*—In addition to the numerous characters already noticed, M. Faithorne states that, when heated above a spirit lamp, hydrate of chloral does not inflame as the alcoholate does. Chloral hydrate dissolves carbolic acid and increases its solubility in water, the odour of the acid being much enfeebled at the same time. When mixed with glycerine, a crystalline substance is formed after some hours. If warm nitric acid be added to chloral hydrate, mixed with potassic bichromate, a blue coloration makes its appearance; on the addition of ammonia this colour passes to red. Caustic soda colours the above mixture blueish-green, and potash blue.—(*Pharm. Journ.*, Jan. 24, from *Journ. de Ph. et de Chim.*, Jan. 1874.)

In the case of chloral, as in that of other organic products—*e.g.*, chloroform, a very small degree of impurity is sufficient to render it unfit for use in medicine, and in the manufacture of chloral, which is tedious and attended with the formation of numerous by-products, it is one of the most difficult technical operations to attain a preparation that will answer its therapeutic object. Thus, in the liquid from which the chloral is to be separated, there exists a great variety of substances, most of them complex—viz., hydrochloric acid, chloride of ethyl, chlorides of acetyl and of mono-chlorinated acetyl, chlorinated acetals, aldehyd, acetic and tri-chloracetic acids. Dr. Oscar Liebreich has published a paper in the *Berl. Klin. Wochenschr.*, 5, 1874, on this important subject. He asserts that a great part of the cases observed by therapeutists have been treated with impure preparations; and he has made a collection of specimens of the drug used in cases where it has failed to produce its proper action, and possesses, he says, some of the most horrible chemical mixtures, which he should never venture to give to a human being. A prejudice has thus arisen against it, and in some parts of the Continent, notably in Saxony and Switzerland, it has fallen into disrepute.

Even pure chloral hydrate, when in the laminated form, is liable suddenly to undergo alteration, generally with the expulsion of hydrochloric acid gas, and Dr. Liebreich prefers the crystallised form as the most stable.

Chloral hydrate, pure in other respects, may contain a large admixture of hydrochloric acid without any detriment to its

* The history of chloral, from its introduction into therapeutics, in 1869, is followed up in previous Reports; 1870, Feb. and Aug.; 1871, Aug.; 1872, Feb. and Aug.; 1873, Feb.; 1874, Feb.

action, but, if the proportion of acid increase, it indicates that the formation of dangerous compounds may be going on. A solution of pure chloral becomes acid by oxidation into tri-chloracetic acid, which delays its hypnotic action, but does not change it. Impure chloral, through the formation of hurtful chlorinated compounds—not tri-chloracetic acid—manifests a constantly increasing acid reaction and a perverted therapeutic action.—(Lond. Med. Rec., March 11, 1874.)

(b.) *Chloral and Camphor.*—When camphor in fine powder is rubbed up with an equal weight of pure crystallised chloral hydrate, a curious change occurs, the explanation of which is not very apparent. The mass becomes damp, and slowly dissolves to form a syrupy liquid strongly resembling glycerine in appearance. A rise in temperature of about 3° F. accompanies this change (J. F. Brown), but no acid or irritating fumes are given off, and the resulting liquid is neutral to test paper. The combination is readily soluble in alcohol and ether, but distilled water converts it into a soft translucent solid, from which, after some time, hydrate of chloral appears to be dissolved out, leaving the camphor in crystalline grains. (I find that croton-chloral does not re-act with camphor. The mixture remains perfectly dry.—*Rep.*) This liquid mixture seems to be a valuable local anæsthetic in tooth-ache and neuralgia. Mr. Lennox Browne (*Brit. Med. Journ.*, March 7, 1874) has employed it during several months, and has found great and sometimes instantaneous relief to follow its application in every case. It is only necessary to paint the mixture lightly over the painful part and allow it to dry. The application never blisters, though it may occasion a tingling sensation of the skin.—(*Pharm. Journ.*, March 14, 1874.) Dr. A. W. Foot has tested this chloral-camphor liniment in a number of cases, and has kindly communicated to the reporter his opinion of its value, which will be read with interest, and which invites further attention to this remedy.

Dr. Foot used the mixture in some cases of the pleural stiches in phthisis, and found it to relieve the pain as well, and, he thought, more quickly and agreeably than the ordinary remedy of small blisters. It gave great relief to neuralgia of the side of the head and face, in which quinine did not answer, in a debilitated old man, emaciated and dying from malignant disease of the œsophagus and stomach; in the ordinary sub-mammary pain of young women; and, externally, in tooth-ache. Dr. Foot was surprised at its efficacy,

but he observed that it did not relieve *deep-seated* pains. The liniment did not cause any smarting, soreness, or redness of the skin, even on the face, such as follows from chloral liniments, but induced an agreeable sensation of warmth. Its effects die away before long, but it is easily renewed. When applied on the face the vapour of it irritated the conjunctiva, although care was taken to avoid its direct intrusion into the eye. He sums up by saying that it seems to be a clean and convenient application, useful for many cases of superficial neuralgia, where local treatment is sufficient.

(c.) *Combination with albuminoid matters.*—M. Personne, who is a strenuous supporter of Liebreich's theory of the action of chloral, has made some new experiments, which show, he asserts, that beside the stronger alkalies, all the weak alkalies, magnesia, alkaline salts, like the bicarbonates of potash and soda, borate and phosphate of soda, and all the alkaline animal fluids, such as blood and white of egg, are capable of converting chloral into chloroform when the mixture is heated to a temperature of 40° C.

In the course of his experiments M. Personne made an observation, which he considers to throw a light upon the physiological action of chloral. Fresh blood added to chloral hydrate, and kept at the ordinary temperature, is completely coagulated, preserves its red colour, and remains without alteration. A morsel of muscle immersed in a 10% solution of chloral became slightly paler, and a reddish liquid exuded from it, which quickly deposited a brick-red sediment. The dried muscle did not putrefy; it contained chloral, and yielded chloroform with alkalies. Albumen also combines with chloral, but M. Personne has not succeeded in obtaining a definite compound. Since it is now generally acknowledged that albuminoid matters are amides, and as aldehydes are capable of combining with these latter bodies, it is not unreasonable to suppose that chloral, which is a tri-chlor-aldehyd, might form with them analogous compounds. The author attempts a theoretical explanation of the more prolonged action of chloral compared with that of chloroform, and concludes by remarking that chloral can be advantageously employed for the preservation of the most readily-alterable animal matters. A cerebellum, placed in a 10% solution of chloral, was preserved for more than a month without alteration, except that it became firmer.—(See abstract of Dr. Keen's paper on the anatomical, pathological, and surgical uses of chloral, in *Irish Hosp. Gaz.*, May 15, 1874.)

M. Byasson admits the coagulating power of chloral on albumen, but concludes, from his experiments, that no real union takes place. He also confirms the remarkable conservative and antiseptic qualities of chloral, indicated some time since by MM. Hirn and Dujardin-Beaumetz, and observes that the easy penetration of solution of chloral into animal organic matters, the partial coagulation of the albuminoids, and the physical mixture of a substance hostile to the life of the lower organisms, sufficiently explain its anti-putrescent virtues.—(*Journ. de Pharm. et de Chim.*, Mai, 1874.)

(d.) *Poisoning by.*—A man came under Dr. Levinstein's care, having swallowed six drachms of chloral with suicidal intent. For an hour afterwards the face was congested, and the breathing was heavy and intermittent. In another half hour, general pallor was observed, with failure of pulse, lachrymation, and contracted pupils. 3 ^mgr_ma of nitrate of strychnia were injected. The sleep was very profound, and he could scarcely be roused by the most energetic means; but in thirty-two hours after the ingestion of the chloral he awoke quite refreshed, and without any consequent gastric disturbance.—(*Lancet*, Feb. 21, 1874.)

Dr. Winn draws attention to the dangerous practice now prevalent of the unchecked sale of syrup of chloral, and relates a case in his own experience of a young lady who nearly fell a victim to this practice. He found her in a profound state of coma, from which she was with difficulty roused, and her mind remained in a confused state for a considerable period after consciousness was restored. It appeared that she had been in the habit of taking a teaspoonful of the syrup of chloral (10 grs. to 3*i.*) occasionally at bed-time, but on this occasion she had taken a much larger quantity, probably about seven teaspoonfuls.—(*Lancet*, March 7.)

Dr. Anstie relates a case of chloral-poisoning, which is remarkable not only for the unparalleled large dose, but for some of the symptoms evoked. A medical man began to take chloral in 3*s.s.* doses in February, 1873, as a hypnotic. He intermitted it for a while, but in August, 1873, he recommenced its habitual use, and took chloral, *during the day*, from one to three times daily. At this time he was very intolerant of alcohol, which, in the smallest quantity, flushed his face, and caused severe head-ache. For a considerable period he was in the habit of taking *over half an ounce* of chloral in the twenty-four hours. In the beginning of December he was affected with severe general pains, particularly about the joints. The day before Dr. Anstie saw him he had, by mistake,

taken an over-dose of chloral—viz., *more than an ounce*. He slept during the day, but not in the night, and had dreadful pains. When seen by Dr. Anstie he appeared as if partially drunk, and suffered temporarily from some leg-weakness and want of co-ordinative power. The treatment adopted (sal ammoniac and extr. cannab. ind.) had little effect. The chloral was, of course, discontinued; and in about a fortnight he was fast recovering his power of natural sleep, and the pains had almost entirely disappeared. For a while he was annoyed with a singular dryness of the skin. The pains were peculiar—they did not run in the course of the nerves like neuralgia, nor exactly in the joints like articular rheumatism; they seemed to encircle the limb immediately above or below a joint.—(*Practitioner*, Feb., 1874.)

In the *Med. Times and Gaz.*, June 20, two cases of death from the acidulated administration of carbolic acid are reported from the North of England.

(e.) *Topical uses*.—M. Limousin lately exhibited to the Société de Thérapeutique specimens of metachloral, an insoluble isomeric form of chloral, and crayons of hydrate of chloral. The crayons are obtained by mixing the chloral hydrate with a little gum, and then covering them with a thin layer of paraffin to protect them from moisture. Several authors have already called attention to the external use of chloral (see *Irish Hosp. Gaz.*, Vol. I., p. 335) in the treatment of ulcers, hospital gangrene, and ulcerative pemphigus, and metachloral possesses the advantage of being less caustic than chloral hydrate, not deliquescent, and of a less irritating odour. If necessary, it may be mixed with lycopodium or other inert powder.—(*Rep. de Pharm.*, 10 Fevr., 1874.)

(f.) *Intra-venous injection*.—It may be remembered that, at its introduction, chloral was credited with anæsthetic powers, but it was soon ascertained that it could not safely be applied to this purpose, and its therapeutic reputation now rests chiefly on its remarkable hypnotic and anodyne qualities. But M. Oré has shown by numerous, varied, and frequently repeated experiments on the lower animals, that chloral injected into the veins constitutes the most powerful of all the anæsthetics. 2 to 6 grammes of chloral, according to the weight of the animal, suffice then to plunge it immediately into a state of insensibility, from which no stimulus, except electric (induction?) currents can arouse it. He has now extended his observations to the human body in two instances ; one, a case of traumatic tetanus in a man, aged fifty-two ;

the other, in an operation for re-section of the calcaneum in a man, aged twenty-two. In the second case, 10 grm. (154 grs.) of chloral dissolved in 30 grms. of water, were slowly injected into one of the radial veins. When two-thirds of the injection had penetrated, the tendency to sleep became almost irresistible, and within ten minutes he fell into a profound, motionless, and death-like sleep. During the operation, the patient slept calmly and without stirring a feature, and the respiration continued quiet and regular. At the conclusion of the operation, the patient was roused from the profound state of hypnotism by applying a strong and rapidly interrupted (induction) current, one pole on the left side of the neck, and the other on the epigastrium. The patient soon awoke, declared that he had been totally unconscious, and was quite restored by the evening.

The author draws some important consequences from his experience, for which we refer to the original papers in the *Journ. de Pharm. et de Chim.*, Avril, Juin, 1874; see also *Lond. Med. Record*, March 25th.

(g.) *In Labour.*—Dr. W. S. Playfair objects to chloroform being heedlessly employed in labour, on account of its relaxing effect upon the uterine muscle, and thinks that the administration of chloral, as a means of lessening the pains of labour, is not yet appreciated at its proper value. It has this immense advantage over chloroform, that it does not seem to diminish the strength and intensity of the pains, while it very markedly diminishes their painfulness. Moreover, chloral is chiefly applicable at a period when we would not think of administering chloroform—viz., towards the termination of the first stage of labour, before complete dilatation of the os, and when there are the sharp and distressing grinding pains. For the past two years he has given chloral in most cases of natural labour for the specific purpose of lessening the sufferings of the patient, and he has had no occasion to observe any bad effects. Towards the end of the first stage he administers 15 grs. of chloral, which is repeated in about twenty minutes, and usually after the second dose enough has been taken to bring the patient sufficiently under the influence of the remedy. It is seldom necessary to give more than a third dose, and he has never given more than 3*i.* of chloral during the entire labour. This method of administering chloral need not at all interfere with the inhalation of chloroform, should that be deemed requisite.—(*Lancet*, Feb. 21.)

M. Lissonde has quite recently published a monograph on chloral, which gives a good summary of its action and uses, but taken almost exclusively from French sources.

14. *Croton-chloral.*—Dr. Burney Yeo contributes a paper to the *Lancet*, Jan. 31, 1874, with a number of cases briefly given, on the therapeutic action of this drug in various forms of neuralgia, and in allaying distressing cough in certain thoracic diseases. After stating his conclusions as to its real value in particular classes of cases, he adds that, in dealing with this substance, we must give an unusually wide range to the dose, for its effects vary greatly, not only on the human subject, but also on the lower animals. The doses Dr. Yeo administered varied from 1 to 10 grs. In delicate females, 2 or 3 grs. will act very decidedly; while in strong males, 10 grs. are often required to produce any appreciable effect. He advises that the drug should always be given in moderate and quickly repeated doses until the amount of tolerance of the medicine in each particular case is discovered. In severe neuralgias, from 2 to 5 grs. every hour, or the smaller dose every half hour until 15 grs. have been taken. A remarkable discrepancy appears in the statements of different observers respecting this drug. In the *Brit. Med. Jour.*, March 7th, four medical practitioners publish notes of their experience with it, that of Dr. Lennox Browne being the most explicit. He does not find that croton-chloral has any advantage whatever as a hypnotic over chloral, and he complains of the uncertainty of its action. Occasionally he has observed the effect of chloral increased by the addition of croton-chloral, 5 grs. of the latter to 15 grs. of the former. Considerable stupor and head-ache frequently follow the sleep produced by the combined drugs.

In the *American Practitioner* for May, 1874, there is an interesting account of the preparation and properties of croton-chloral, compiled by Mr. Diehl from German sources.

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

DR. LYONS, President.

DR. BENNETT, Secretary.

Laryngeal and Pharyngeal Croup.—DR. BENNETT said that in last July, within about a week of each other, two children were admitted into Sir Patrick Dun's Hospital; one upon the 5th, the other on the 14th. The child admitted on the 5th died within six hours after admission. It was a girl eleven years of age. The second was a boy eight years old, who lived for two days after admission. The two cases presented pathological phenomena resembling each other in various points, but they were two cases typically distinguishing the conditions of ordinary croup and of diphtheria, as it affected the pharynx, and extended to the larynx. He had seen in that Society since he was familiar with it—now a considerable period—but one case of diphtheria shown there, a case exhibited by Sir Dominic Corrigan some years ago. The case of croup presented no very remarkable feature. The age of the boy was that at which croup was frequently observed—namely, eight years. The only thing remarkable was that two days was a longer time than usual for a case of croup that terminated fatally to run, from the commencement of definite laryngeal symptoms. He could not show the pathological appearances, for they disappeared after the *post-mortem* examination. The larynx was lined by a pale false membrane, adherent on the upper part. On tracing this down it was found hanging loose in the trachea, extending to the bronchi and their ramifications in the lungs; in fact, it formed a strict cast of the surface of the mucous membrane, but, except in the upper part of the larynx, was detached. No surgical interference was resorted to. His colleagues thought that the lung condition presented in this case from the beginning was such as to contra-indicate any surgical interference; but on *post-mortem* examination the condition

of the lung was not found to be such as to preclude operation. During the first day he had slight paroxysms of croup, which subsided as soon as the boy was exhausted by them; he then fell back into a sort of sleep, waking up with another paroxysm. These violent exacerbations became worse, until in two days he died of asphyxia, his eyes starting from his head, and his face livid and congested. Ordinary treatment had no control over the disease. The second case presented a remarkable contrast of symptoms. The girl came into the out-patients' room of the hospital in the morning with an elder sister. She was an intelligent child, eleven years of age. She walked into the room without distress, or staggering, or any tendency to fall being observable. The thing that struck him particularly was the extremely lethal expression her face bore. It was almost as certain as possible that she was dying. She had no respiratory distress, but had the appearance seen usually in patients dying of acute renal dropsy. The face was puffed, but not very much, and extremely pallid, and there was a listless condition about her which could not be mistaken as being extremely serious. When she spoke the laryngeal implication was found; her voice was distinctly croupous, but there was no respiratory distress and no cough. The surface of the soft palate, of the tonsils, and the uvula, was covered with a thick, yellowish, false membrane. On putting his finger into the throat he could touch the epiglottis with facility, and could feel that it was greatly thickened; he inferred that this thickening was caused by deposit on the surface. The child was admitted to the ward. Her skin was hot; her pulse so rapid and feeble that he could hardly count it. Remedies were administered, hoping to get some reaction, but, without anything to which he could attribute death, she died in six hours. She lay in bed on her side, with her arm under her head and knees drawn up, without any respiratory distress, and air could be heard entering the lung freely, but with a considerable amount of crepitus. The striking feature this case presented, in contrast with the other, was that there was no indication or any surgical interference in the way of tracheotomy. In fact, if the girl had not spoken, they might readily have passed over the throat affection. This child presented at the root of the tongue, all over the fauces, a thick yellowish membrane. As it was traced over the epiglottis, and into the larynx, it was adherent; but the moment they came to the region of the trachea it was found freely detached, without any breach of the surface under it. The membrane was thicker and firmer than that in the boy's case, and did not dissolve, as the other did, a few days after the *post-mortem* examination. It could be traced down to the bifurcation, and the same condition was found existing to some extent in the bronchi. If they closed the glottis, and placed it in its normal position, the opening would be found more reduced than it was in cases of œdema of the glottis.

They should have expected, from the amount of swelling, that there would have been most severe laryngeal distress, but there was none. No anatomical distinction could be made between the membranes in the larynx and trachea, except that the diphtheritic membrane was denser and more lasting; they were both adherent in the larynx, both alike separated from the membrane of the trachea. The greater durability of the diphtheritic membrane might, perhaps, be attributed to its greater age, for the girl had been ill for fully a week before admission, if not longer; the boy had been suffering only for a few hours before admission. The remaining difference between the membranes was their distribution—the croup membrane was confined to the larynx and trachea, not reaching the epiglottis. In the diphtheritic case the entire upper part of the pharynx and back of the mouth were covered by false membrane. At the *post-mortem* examination the bladder in the diphtheritic case was found to contain urine loaded with albumen; none could be obtained during life. The anatomical characters of these cases exactly coincided with diseases described by Rindfleisch as laryngo-tracheal and pharyngo-laryngeal croup. "Of these," he says, "at the bed-side the former is termed croup *par excellence*; the latter, most erroneously, diphtheria. The physician has every reason to keep the two varieties apart. In their clinical characters, in the dangers to which they expose the patient's life, and, above all, as regards their treatment, they differ so essentially, that in spite of their anatomical identity, on which it is my business to insist, I should feel bound to oppose any attempt towards a clinical fusion of the two diseases." It would appear, then, that the use of the term diphtheria, as applied to this disease, is not justifiable, as it implies an anatomical distinction that does not exist.—*February 7, 1874.*

Suppurative Perityphlitis.—DR. HAYDEN submitted to the Society an example of acute peritonitis of the circumscribed form. A girl, aged twenty-two, who had enjoyed previously uninterrupted good health, was admitted to the Mater Misericordiae Hospital on the 29th January in a state of collapse. She reported to him as follows:—On the preceding Thursday, a week prior to the date of her admission, she was attacked suddenly with acute pain in the abdomen, accompanied by tenderness and vomiting. From Thursday till Saturday her condition was that rather of improvement. The vomiting ceased, the tenderness also subsided, and she was able to obtain sleep and take food. On Saturday she was again attacked with excruciating pain in the abdomen, accompanied by vomiting. During the interval between the preceding Thursday and the date of her admittance the bowels had been regular, and frequently moved. When he saw her she was in a state of collapse; no pulse to be felt at the wrist, the countenance pallid, the abdomen distended and extremely tender, but not

universally so, the seat of greatest tenderness being the umbilical region. There was no detectable tumour or solid swelling in any part of the abdomen. He was by no means clear as to the nature of the case, because the possibility of gastric ulcer was excluded by the uninterrupted good health she had enjoyed—no pain after taking food, no vomiting of blood, no epigastric tenderness, and a total absence of left scapular pain. She improved under ordinary treatment from the 29th January until the 10th of the present month (February), three days before her death—the distension of the abdomen had subsided, the tenderness passed away, the vomiting ceased, she was able to sleep, and take and retain food; but there was still partial tenderness of the abdomen, and her appearance was not that of favourable convalescence. On the 10th she again sickened, and in the course of that day passed again into a state of collapse. The abdomen was inflated and extremely tender, the tenderness being mainly confined to the umbilical region. Her condition then afforded no prospect of a favourable issue. She referred her pain to the lower part of the left side of the chest. Careful examination of both sides of the chest, however, gave satisfactory evidence that the disease had not its seat there. She died on the 18th. The intestinal canal and the stomach were perfectly sound. The intestines were matted together by dense false membrane. The peritoneum here and there was in a remarkable state of thickening—in many places as thick as medium sole-leather—rough on the surface, and presenting the appearance of an ox's tongue. The intestines were matted together, and included between their folds a number of small abscesses, twenty at least, containing thick, cream-like pus. The principal purulent deposit was in the right iliac fossa. The peritoneal investment of the uterus and bladder was remarkably thickened; it peeled off with great facility. The bladder and the uterine system were perfectly sound. There was proof of a total absence of disease in the intestines, just a little vascularity in the terminal part of the ileum only. The mesentery was greatly thickened in several situations. This case was one of very peculiar interest. One's first impression would be—the girl's age being twenty-two, and she having previously been in good health, it was likely to be a case of perforation of the stomach; but this was excluded. Then it might be suggested that it was a case of hernia, or obstruction of the bowels; but this view was also excluded. What, then, was it? There was no antecedent history of illness, or local disease; no obstruction of the bowels; the tenderness was confined to the umbilical region. It was a case of inflammation of the external aspect of the cæcum caput coli—suppurative perityphilitis—the abscess so formed bursting through its boundaries, and giving rise to peritonitis, which was limited to certain regions of the abdomen, for the surface of the liver and stomach was perfectly smooth. The case showed how much is yet to be learned in regard to the diagnosis of abdominal disease, and

was a subject of reflection for all thoughtful physicians.—*February 14, 1874.*

Popliteal Aneurism.—MR. JOHN HAMILTON said:—A man named Doran, a blacksmith, aged fifty-two, was admitted to the Richmond Hospital suffering from aneurism. He was a small man, and very unlike a blacksmith, being thin, without much muscular development, exceedingly pale, and of a very nervous temperament—so much so that when an attempt was made to examine him he jumped to one side of the bed from the surgeon. He had been a very hard drinker, and one whose constitution had been very much damaged by drink. He had an aneurism at the upper part of the popliteal space, a little in front, and a little to one side, just below Hunter's canal. It was about the size of a fist; it was hard to make out distinctly; it appeared to be of the diffused form; the walls were thin, the pulsation very strong, and a very loud soufflet was present. It was of four months' standing. The patient first perceived a small kernel; it gradually increased, accompanied by pain, and if he kept his limb fixed in any position for a time he found the greatest possible difficulty in straightening it afterwards. It became a question what was best to be done with this large aneurism. Of course, Mr. Hamilton naturally preferred compression to any other mode of treatment; but there were some circumstances in this case that made it unsuitable for compression. Its thin walls, its fluid contents, the absence of a fibrinous deposit, the extreme irritability of the man, were all unfavourable points. There was another fact that was very much opposed to the use of compression—namely, that immediately below Poupart's ligament, to the lower part of Scarpa's space, the glands were considerably enlarged, so that pressure could not be properly applied in the course of the artery. Mr. Hamilton thought, however, he would try compression, and applied the truss-like compressor made, at his suggestion, by Mr. Read, over the femoral artery, just below Poupart's ligament. It stopped the pulsation with a moderate degree of compression, but the man could not bear it for more than a couple of hours. While it was on the tumour considerably decreased, the pulsation left, and the tumour became a little solid. He then determined to try digital pressure, and a number of the students very kindly volunteered to keep it up. It was applied for twelve hours, but very imperfectly, for the man could not bear the pressure of the thumb for any length of time, so that at the end of twelve hours little was gained. The tumour was, however, slightly reduced in size, and a little more solid. He then thought he would try flexion, and he bent the leg as much as he could. He found it had a very considerable effect on the tumour; that very extreme flexion of the leg on the thigh stopped the pulsation, and the tumour became less. He, therefore, bandaged the leg in extreme flexion. The patient's irritable tempera-

ment was such that he could not bear this position, and in the night he removed the bandage. Mr. Stack, the resident surgeon, was anxious to try Mr. Thompson's ingenious instrument on the principle of a lever. It was applied for several hours, but with a similar result, and this also had to be given up. All hope of treating the case by compression was then abandoned, and, with the consent of his colleagues, Mr. Hamilton proceeded to tie the vessel. A ligature was applied, at the lower part of Scarpa's space, on the eighth day after admission. There was scarcely any haemorrhage, and the only feature of the case was that all the parts were of a deep red colour, from venous congestion. He went on very well till the fourth day. There was no pulsation in the tumour, and it was considerably diminished in size. Then he got a severe rigor, and diffuse inflammation of the thigh came on. All the lower part became enormously swollen, painful, tender, and intensely red. There was a good deal of fever, restlessness, and want of sleep. On the second day Mr. Hamilton made an incision on the left side of the thigh. Some matter came out, but it was one of those cases in which the surgeon was disappointed. The cellular tissue was infiltrated with pus. The incision gave some amount of relief, but the curious feature was that when the diffuse inflammation set in a slight pulsation returned in the tumour. It was a sort of muffled pulsation, and he attributed it to the increased action of the artery, the returned circulation in the vessel below the ligature filling the aneurism. He complained of a most violent pain in the shoulder and arm, and on looking at the sterno-clavicular articulation on the right side, it was found greatly swollen, slightly red, very tender, and painful. This condition gradually subsided. Then he complained of violent pain in the knee, which was greatly swelled, and he could not bear even the bedclothes to touch it, or an examination to be made. This gradually subsided, and no other joint was affected; but on the twenty-first day haemorrhage came on early in the morning. Mr. Stack, the resident surgeon, attended promptly to the bleeding, but it was found very hard to subdue, and when Mr. Hamilton went to the hospital shortly afterwards he found it still going on very freely. The man was exceedingly weak, so that Mr. Hamilton thought he would die. A compression sponge, with a band beneath, and a tourniquet, were applied, and for forty-eight hours he had no return of the haemorrhage. Then it returned; it was not much, but the man was so weak with all this succession of disasters that he died. Mr. Hamilton exhibited the aneurism. It was about the size of a fist, with thin walls. There were some black coagula in it, and some white fibrinous deposit at the opening in the artery which led into the sac. A bougie could be passed along the artery at the back of the aneurism, but there was a portion, about an inch, where the artery was overlapped by the aneurism. The ligature was seen round the artery, still it had cut its way half through the vessel,

and not the slightest attempt at a clot, or fibrinous deposit, existed either above or below the ligature. The artery, therefore, was quite pervious at the ligature; hence the haemorrhage. The cellular tissue of the thigh was infiltrated with pus; the veins were full of pus; there was pus in the femoral vein, and in two places there was ulceration of the vein, about three inches below Poupart's ligament, and a little above the sac. If the man had not died of haemorrhage, he would have died of pyæmia; but there was another cause of death which was impending. On looking at the arch of the aorta, it was found to be exceedingly diseased, covered with atheromatous deposit, and small calcareous plates; on the upper part of the descending aorta there was a small aneurism, which would hold a chesnut; it had gone through the middle and inner coats, and the external cellular coat was so thin that it must soon have burst.—*February 14, 1874.*

Atrophy of the Pancreas—Hydro-pneumo-thorax.—DR. YEO exhibited the lungs, spleen, pancreas, and duodenum of an intemperate female, aged forty, who had died of hydro-pneumo-thorax. She had suffered from slight cough and constant diarrhoea for six months, during which time she had lost flesh very rapidly. About a fortnight before her death the chest symptoms became very much intensified, but before that had not been in proportion to the rapid emaciation and great debility. She had no appetite, and had almost lived on alcoholic drinks for some time before her death; the body most intensely emaciated. On opening the abdomen the liver was found to occupy an almost central position, the right side of the diaphragm projecting as an even convex tumour about two inches below the margin of the ribs. The right pleura extended across to the left nipple, pushing the heart before it, and considerably compressing the left lung. When the right pleural cavity was opened a great quantity of air escaped forcibly, and the side collapsed considerably. Eighty-four ounces of greenish, curdy, whey-like fluid were removed from the cavity of the pleura, which was found to be thickened by friable exudation. The lung, compressed to a small pyramidal mass, lay in the internal and superior part of the cavity. In the anterior part of the upper lobe there was a vomica, about the size of a filbert nut, immediately under the pleura, which was perforated by a considerable valvular opening. The lung tissue was black, tough, and perfectly emptied of air, but was free from any appearance of tubercle, or caseous degeneration. The left lung and pleura were healthy. There were some cicatrical depressions on the liver, and a thick, fibrous patch on the convex surface of the spleen, which appeared to be the result of past inflammation. The bile ducts were dilated to about three-quarters of an inch in diameter, but the opening into the duodenum was exceedingly narrow. No pancreatic duct could be found, but an oblong cyst, the size of an almond, occupied its position

beside the bile duct. In the situation usually occupied by the pancreas was found a dense packet of fat, about half an inch thick, covered by unaltered peritoneum. A section of this showed numerous fibrous trabeculae, and some few clusters of gland tissue sparingly scattered throughout its centre; but the sum of these collected together would not exceed in size the submaxillary gland. Several cicatrices were found on the vulvæ.

Dr. Yeo suggested that former ulceration, probably syphilitic, had produced narrowing of the ductus choledochus, and occlusion of the pancreatic duct, which he thought was represented by the small cyst, and that the atrophy of the gland followed the occlusion of the duct. He considered the want of pancreatic secretion to be the cause of the constant diarrhoea and the rapid marasmus, as no corresponding destruction of lung tissue had taken place, and but for the accident of the pleural perforation, there was no immediate danger from the pulmonary disease.—*February 14, 1874.*

Atrophy of both Optic Nerves.—Dr. C. E. FITZGERALD exhibited a coloured drawing which he had executed of the appearance presented by the left optic disk of a boy aged eight years, who was sent to the National Eye and Ear Infirmary on the 9th of August. He gave the following history:—Two months previously he got up one night in his sleep and proceeded to descend a ladder from the loft in which he slept. He missed his footing and fell a distance of sixteen feet on the top of his head. He remained insensible for several minutes. After this he suffered greatly for some weeks from head-ache and vomiting. The sight of both eyes was impaired, and this gradually increased until he became totally blind.

On making an ophthalmoscopic examination the right optic nerve was found to be completely atrophied; the left optic nerve was also atrophied; but its outer half (inverted image) still showed some remains of neuritis. This was interesting, as proving that the atrophy was not primary.

The boy stated that he had been subject to violent head-aches and vomiting since the preceding Christmas, so that it was very difficult to say whether the fall had anything to do with these symptoms or not.

His teeth had a rather suspicious appearance; but it was impossible to find out whether there was any history of syphilis connected with the case.—*February 14, 1874.*

Sphacelus of Vagina, with Fistulous Communications into Bladder and Rectum—Destruction of several inches of Ileum, and Permanent Severance of this Intestine.—Dr. WENSLEY BOND JENNINGS said the following case was, in his opinion, the most interesting it had ever been his fortune to meet with, being—so far as he had been able to ascertain—in

fact, unique of its kind, affording, as it did, an example of recovery, or rather, to speak more correctly, of escape from death, after injuries had been sustained of such a nature and to such an extent as to preclude, in the judgment of almost every one, the possibility of such a result. The patient from whom it had been obtained was admitted into the Female Hospital of the South Dublin Union, so far back as the 21st September, 1871, having come to Dublin from a distant part of the country in search of relief from the sequelæ of her first confinement, which had taken place about twenty years previously, and which she represented to have been one of unusual delay. Her appearance, which was anaemic and emaciated, was at first entirely, though as was subsequently ascertained, not altogether correctly, attributed to the sufferings inseparable from the serious visible ailments under which she had laboured during so many years. These, though they undoubtedly did exercise considerable influence, yet were not the sole causes of her wasted *physique*, which, as the *post-mortem* examination evidenced, was to a great extent referable to a source not then suspected. An examination made at that time, which disclosed the presence of two inter-femoral tumours—namely, in front the inverted bladder, and posteriorly the prolapsed uterus, as likewise the most extensive destruction of the vaginal walls, added to her rather advanced age, which she admitted to be fifty years, and the other features of the case, caused both himself and Professor Sinclair, who most kindly favoured him with his advice, to decide against the performance of any operation, and thus to reluctantly destroy the hopes she had previously entertained. This advice—to bear the ills she knew of—she accordingly followed for more than a year and a half, until in an evil hour she listened to the counsels of some lady visitors, whose representations so destroyed her feelings of resignation and so re-awakened former hopes, that she determined, to use her own words, "that something should be done for her relief," notwithstanding that the certain danger to be incurred, and the very uncertain benefit to be derived from any operation even if successful, were fully explained to her. At length, yielding to her importunities, and in opposition to his better judgment, he consented to undertake the only operation which the circumstances of the case admitted, and which was at best but a palliative one—namely, to effect "atresia of the labia" throughout their two posterior thirds, and thus effect the permanent reduction of the external tumours. Into the details of the operation, during which he enjoyed the valued assistance of Professor Sinclair, and which was easily and rapidly performed, and without the employment of any anæsthetic, it was not necessary to enter further than to say that it simply consisted in paring and then uniting the opposed surfaces by deep and superficial interrupted sutures, the former being secured over pieces of elastic bougie. The escape of any urine which might accumulate in the pouch thus constructed was secured by

the constant presence of a large gum-elastic catheter introduced in front, and by keeping the patient as much as possible in the semi-prone position. A few hours, however, after its termination most distressing nausea and vomiting set in, and of such an obstinate character as to resist all treatment, returning with more or less persistence on the administration of food, even of the blandest kind and in the smallest quantities. In the course of the third day it became necessary to remove the sutures, partly in the hope of relieving this irritability of stomach, and partly in consequence of *fætor*, which then became perceptible. The union, which was then found to have commenced, even under such unfavourable circumstances, was, however, rapidly destroyed by sloughing, which, having then set in, continued during the two following days, when she was at length released from her sufferings by death, which occurred on the evening of the fifth day after operation. In the course of the *post-mortem* examination, which was made by the assistant resident medical officer, under his superintendence, Dr. Jennings was surprised, when the intestines were raised out of the false pelvis, to perceive that the ileum was attached, as he at the first glance supposed, by simple adhesion of its external coat to the fundus of a tumour which occupied the cavity of the true pelvis. On a closer examination, however, his surprise was much intensified to find that this was not the fact, but that this intestine was completely severed, and that each extremity was separately connected to an artificial cloaca here situated; that on the right side the intestine was impervious and reduced to the thickness of an ordinary quill, to an extent of about two inches, while on the left it opened with unreduced calibre into this chamber, which communicated with the ileum from above, the bladder in front, the rectum from behind, and the vagina below. This case differed most strikingly from every other recorded instance of intestinal injury that had come under his notice in practice or reading. In cases of artificial anus, and recovery after loss of portions of intestine from "volvulus" or "intussusceptio" there did not exist any permanent interruption of continuity of canal; in the former the loss of substance was only lateral, and in the latter the permeability of the canal, even if ever interrupted by complete section, was soon re-established by subsequent direct union, while the strong probability was that the two processes, that of severance and re-union, progressed *pari passu*; but in this case not only had there occurred permanent section of all the coats of the intestine, but also the functions of the ileum, in fully half its extent, and of the entire of the colon and rectum, had been completely arrested during the lengthened period of more than twenty years.

The *post-mortem* did not present the slightest trace of peritonitis, old or recent, and death evidently was induced by exhaustion.—*February 14, 1874.*

Morbid Anatomy of Scarlatina.—DR. A. W. FOOT exhibited some parts of the body of a girl, aged thirteen, who had died of scarlatina anginosa. It was one of those cases in which local effects of the constitutional disease prove fatal, in which the accidental results or consequences of the general malady are more unmanageable than the essential disease itself, which becomes of minor importance, compared with the complications. This girl was admitted into the Meath Hospital on the fifth day of her illness, with copious eruption of a livid tint, and severe throat symptoms, and at this time there was slight tumefaction of the left side of the neck. This swelling daily increased in amount, in extent, and in hardness, up to the time of her death, which took place on the ninth day, at which time the eye-lids on the left side were closed. Careful and repeated examinations of this swelling were made, with a view to the discovery of any indications for an incision, but none were ever found. The swelling extended above and behind the ear, and down to the clavicle, changing the shape of the side of the neck into a raised, smooth, brawny flag. Evidence of a similar swelling appeared on the other side of the neck shortly before death. Owing to the difficulty of getting her mouth opened sufficiently it soon became impossible to observe the condition of the tonsils; her teeth were always tightly clenched. Her illness was characterised by great restlessness, constant want of sleep, great dysphagia, increasing rapidity of the pulse, and increasing cyanosis, especially of the upper half of the body. Her temperature was on no occasion excessive; the highest point it reached was 103·9° Fahr. The venosity of the blood had, very probably, some connexion with this matter. The dribbling, flickering pulse, never under 140, and reaching 160 and 180, with the feeble cardiac sounds, indicated coagulation of the blood in the heart, one of the causes of early death in scarlatina. Although she took both wine and brandy freely, the circulatory symptoms did not improve. The application of twelve leeches to the side of the neck made a very transient diminution in the tension of the cervical swelling, but gave no permanent check to its increase. After a protracted state of low, muttering delirium, from which she could be roused to speak or swallow, she lapsed into unconsciousness, and shortly afterwards died quietly.

In the body, examined eighteen hours after death, the swelling presented the same characters in hardness and extent as it had during life; the pupil on the left side—that on which the principal swelling existed—was at least four times as large as the right pupil: this difference, even to a greater degree, had been observed during life. The cuticle on the backs of the hands was in process of desquamation. The region of the neck was carefully dissected in anatomical fashion; the subcutaneous connective tissue was abundantly infiltrated with clear brownish serum; the superficial lymphatic glands were all more or less enlarged, but it was the deep glands which were principally increased in

size. From the superior margin of the thyroid cartilage upwards, behind the angle of the jaw, the internal jugular vein and its tributaries were compressed between masses of swollen succulent glands in the region where the facial, lingual, pharyngeal, and occipital veins open into it; the pressure of these glands underneath one of the deep layers of the cervical fascia, in the direction of least resistance—namely, towards the vessels between them—must have been very great, judging from the force with which their succulent œdematous structure sprung out where their coverings were incised. None of the veins of the neck were plugged or inflamed; this point was examined into carefully. The salivary glands were normal-looking in colour and appearance, but were more succulent than usual, either from œdema, or from being overcharged with accumulated secretion.

The tonsils were very much affected; the left one presented a central slough, loosely connected, and almost detached. The irritation of the lymphatic glands was undoubtedly caused by absorption of putrid matters from the sloughing tonsils, especially from the left one; the group of deep cervical glands which receive the absorbents from the tongue, tonsils, and pharynx are particularly numerous about the bifurcation of the common carotid, and in this instance the numerous and important vessels in this region were embedded in the swollen masses. It is noticeable that in this instance the solitary glands of the intestines were not affected; throughout the entire tract of the small intestine not more than two or three were visible to the naked eye, and but three or four agminate groups (patches of Peyer) were prominently enlarged, and those the terminal ones. The mesenteric glands were but moderately swollen. In this respect the condition of the intestinal glands contrasted strongly with the cases of scarlatina which Dr. Foot had recently laid before the Society. The sub-mucous membrane of the pharynx was œdematous; that portion of it covering the left arytenoid cartilage was infiltrated, so as to give this prominence the appearance of being three times the size of the opposite one; the membrane of the pharynx was very much congested, and of a livid colour; the veins of the pharynx opening into the internal jugular had been greatly obstructed.

The pericardium contained about two ounces of clear, straw-coloured serum; the right cavities were occupied with a continuous, tough, cream-coloured coagulum, extending into the pulmonary arteries; the left cavities contained a much smaller and softer clot of similar colour; the empty heart weighed $6\frac{3}{4}$ ozs.; the kidneys—weighing, the left 4 ozs., the right $3\frac{3}{4}$ ozs.—presented nothing abnormal in shape, colour, or consistence; the increase in vascularity was very slight; the urine before death had been scanty and albuminous. The liver, apparently normal, weighed $4\frac{1}{2}$ ozs.; the spleen, which had one limited spot of softening, weighed $4\frac{1}{2}$ ozs.

The result of the dissection showed that in this instance the term

"parotid" swelling would have been an inaccurate one, and that of scarlatinal bubo preferable ; also that there was no cellulitis ; that operative interference would have been ineffective, and that the swelling was the result of the pressure of the enlarged lymphatics of the tonsils and fauces upon the veins they lie among. Dr. Foot considered that this pressure by interfering with the return of blood from the brain, with respiration and deglutition, though a secondary result of necrosis of the tonsils, was more formidable than the original disease, inasmuch as the resources of surgery and medicine combined could not but have been quite powerless against its effects.—*February 21, 1874.*

Epithelial Cancer of Bladder and Rectum.—DR. JAMES LITTLE said the specimen he now exhibited had sufficient clinical interest to justify him in bringing it forward, owing to the uncertainty that hung around the diagnosis during life. The man was for two months under his obseration in the Adelaide Hospital, without his being able to arrive at any certain opinion as to the nature of his ailment. When he first came in he examined him and ventured to say the probability was he had some malignant tumour deeply seated in the pelvis, but that was rather a guess than a diagnosis. For some time before admission to the Adelaide Hospital he had been under the care of Dr. Foot, in the Meath Hospital, who had investigated the case with the thoroughness with which he applies himself to every subject he touches, and he also felt a difficulty as to the nature of the disease. The patient had two very prominent symptoms—one, a frequent desire to make water, and when the desire came on him the demand was so urgent that he had to comply with it instantly, and frequently wet the bed before he could get up. He had a similar condition of the bowels. He had to empty his bowels very frequently, the motions being small, and the desire to empty them being extremely urgent. These were nearly all the symptoms he had, except that he became greatly emaciated. He refrained from food, partly because he had little desire for it, and partly because experience taught him that the bowels became more troublesome soon after he had eaten. Feverish symptoms developed themselves towards the end, and he died simply of exhaustion. On several occasions Dr. Little saw the motions that passed from his bowels, and found them to consist of liquid faecal matter, not of a very strongly offensive smell. He was told that when the patient was in the Meath Hospital the motions were dysenteric and extremely foetid. After death it was found that he suffered from a malignant growth, which belonged to the epithelial class, and was situated so as to implicate the bladder on the one side and the rectum on the other. The lower part of the rectum, except that it was congested and the mucous membrane greatly swollen and oedematous, did not call for any remark, but when they came up to the termination of

the sigmoid flexure they found a mass of epithelial cancer which had undergone a process of ulceration. The bladder was very much contracted, its walls thickened, its mucous membrane corrugated and of a deep red colour. Curiously enough, though the rest of the colon above the malignant mass did not present any remarkable appearance of disease, on slitting up the ileum the mucous membrane was found inflamed and superficially ulcerated ; this appearance of enteritis was limited to two feet of the ileum. On the surface of the left kidney there were two small abscesses that had opened, and there was pus in the pelvis, and infundibula of the kidney. Whether this was an extension of the inflammation from the bladder or not, he could not say.—*February 21, 1874.*

Stricture of the Oesophagus.—DR. GRIMSHAW exhibited a specimen taken from the body of a patient who died in Steevens' Hospital on the 19th February. His case presented a long history which had been carefully reported by his clinical clerk, Mr. Charles G. Maturin. It was briefly as follows:—Two years ago the patient, aged fifty-three years, enjoyed perfectly good health. At that time he returned from a voyage to the West Coast of Africa, and, on arriving home, became slightly dropsical in the feet. He went to Sir Patrick Dun's Hospital, where he got perfectly well of the dropsy. This, however, recurred several times, and he was treated for it in Liverpool and once elsewhere. This dropsical condition was accounted for by some disease of the kidneys, which was found after death, but that disease had had no connexion with the point which he wished to bring under the notice of the Society. He went on tolerably well until December of last year, when he noticed there was some difficulty of swallowing. This did not seem to do him much harm, according to his own account, but it steadily increased, and on the 31st of January it amounted to so great an obstruction that he could not swallow any of the more solid foods. He was able, however, to take bread and milk. He applied for admission on the 13th of this month (February, 1874). He first complained that he vomited his food, but on questioning him it was found that he was not able to swallow anything. He was very carefully examined, and, on listening to the swallowing sounds, it was found that nothing passed into the stomach. He said that the day before his admission he “got down a pint and a half-of milk, but some of it came up,” and, probably, but little passed into the stomach. On the day of admission he said he had swallowed something, but, as far as he, Dr. Grimshaw, could ascertain, nothing passed into the stomach. A tube was passed into the oesophagus by Mr. Hamilton, and was passed to a point close to the entrance of the stomach, but could not be got to enter it. Subsequently a smaller tube was tried but it also failed. Mr. William Colles also tried to pass the tube but without success. The patient was frightfully wasted, he was almost skin

and bone ; and a prominent symptom was that he was extremely hungry and thirsty. He complained of hunger for the first couple of days in hospital, and whether the relief of the hunger was owing to the enemata that were given, or to the well known fact that persons dying of starvation seem gradually to lose their desire for food, he could not tell, but the complaint of hunger ceased. He, however, complained continually of thirst, and various methods were adopted to relieve it. He constantly sucked ice, enemata of water were given, and he was placed in a tepid bath. None of these measures seemed in the slightest degree to relieve the intense thirst ; he gradually got weaker and weaker, and died on the evening before last. Dr. Bookey made the *post-mortem* examination. There appeared to be a slight narrowing of the oesophagus at its upper part ; at the lower part it was found that it entered a large cavity ; the oesophagus, dilated as usual in such cases, terminated in the mass of disease now shown. This mass continued down to the cardiac orifice of the stomach and completely involved the orifice, extending somewhat into the stomach. The stomach was very small and adherent, at one point, to the liver. A section made into the liver from a distance up to the point of adhesion did not show any disease of the liver. It simply appeared to be an adhesion partly composed of enlarged glands and partly by the extension of the disease. The pancreas was also involved in the disease. During the *post-mortem* examination, when the position of the stricture was reached, an attempt was made to pass the smallest tube used during life through the narrowed part, and with some slight difficulty it was passed through the opening ; but the condition of the parts above accounted for the difficulty experienced in passing the tube into the stomach. The other organs were healthy, with the exception of the kidneys, which appeared to be in an incipient state of cirrhosis, and the lungs which contained cretaceous deposits. It had been remarked that malignant disease in these parts—for there is no doubt of its malignancy—did not generally involve surrounding parts. Here, however, it was evidently making an inroad on the liver and the pancreas. The stomach and the bowels were perfectly empty.—*February 21, 1874.*

True Ankylosis of the Hip, resulting from Morbus Coxae in Early Life.—DR. BENNETT, in presenting this specimen, said the individual from whom it was taken was a boy of fifteen years of age. He had suffered from hip disease for seven years, but a year before his death all the numerous abscesses round the joint had ceased to discharge. He applied for relief of cough and pain in the chest at Sir Patrick Dun's Hospital six months before his death. He was in advanced phthisis, and said that his hip caused but little, if any pain. The joint was flexed and the thigh adducted. He was subsequently admitted into one of the

Union hospitals, where he died. His body was dissected in the School of Medicine, Trinity College, where I obtained the ankylosed joint. The only remnant of active disease in the hip was a small abscess, which occupied a deep depression on the internal aspect of the innominate bone, which was formed by perforation of the acetabulum. This abscess contained an irregular bony sequestrum, which was too large to escape through the opening seen in the front of the specimen.

The neck of the thigh-bone in this specimen was not materially shortened, but it is greatly thicker than natural, in consequence of extensive additions to it by ossification of the capsule, chiefly of the part known as the ilio-femoral ligament, which appears to form the lower side of the canal through the joint. The intra-pelvic abscess, formerly much larger than when the specimen was dissected, opened through this canal and also through the anterior and upper part of the great sciatic notch. Its path over the dorsum ilii is seen marked by two deep furrows leading forward through the attachment of the glutæus minimus muscle. Another and separate abscess groove passes upwards on the dorsum ilii. The disproportion between the size of the ala ilii and the thickness of the bone along the brim of the pelvis is well seen, a character which I have referred to before as enabling us to recognise specimens from individuals in whom the disease has commenced in childhood.—*February 21, 1874.*

Hæmorrhagic Sarcoma of the Pleura, combined with extensive Pleuritic Effusion.—DR. GORDON exhibited the morbid parts and a drawing of the recent appearances, and said that while the specimen was of great value and interest in a pathological point of view, being an admirable example of this not very common form of malignant disease in a comparatively young subject, it was not less interesting in its clinical aspect, as elucidating the difficulty of diagnosis when two diseases co-exist, although either existing alone would apparently present no difficulty. The history of the case was as follows:—

Margaret Clarke, aged twenty, a servant, from the suburbs of Dublin, reported herself to have been in perfect health, and able to perform her usual work, until five weeks before her admission into hospital. She then got a severe wetting, and was immediately after attacked with pain in her right side, and short breathing. The pain gradually diminished, while the difficulty of breathing increased. She was admitted into the Whitworth Hospital on the 20th of February, when the following note of her case was made:—

“She is a strong, well-made girl, and has not the appearance of being affected with any constitutional disease. Her parents are both alive, and healthy. She has still pain in her right side on deep inspiration. The entire right side is dull on percussion, the dulness extending beyond the

anterior mediastinum, and the heart is displaced downwards, and towards the left side. The right side is two inches larger than the left; the intercostal spaces obliterated, the side motionless on inspiration, and she cannot lie on the left side. There is no respiratory murmur audible in the right side of the chest, except in the very upper and posterior part, where it is bronchial. The respiratory murmur over the left lung is loudly puerile. The heart's action is very rapid, 120, and feeble. The respiration is 34. The diagnosis given was pleuritis, with very extensive effusion, compressing the right lung into the cone of the pleura, displacing the anterior mediastinum and the heart. As she has still some pain on deep inspiration, a few leeches are to be applied to the right side, and she is ordered some mild mercurial." On the 23rd there was no improvement in any respect—on the contrary, the face was rather suffused, and her lips rather blue. I, therefore, introduced a small-sized trocar and canula between the fifth and sixth ribs, and drew off 90 oz. of reddish serum. After this she was able to lie on her left side. The respiration came down to 28, and the pulse, without diminishing in frequency, became more full. The heart returned almost to its normal position, the bronchial breathing at the apex of the lung was less pronounced; but otherwise the stethoscopic phenomena were not much altered. The secretion of urine was very scanty; contained a large amount of lithates, but no albumen. The grey powder was continued, with a diuretic mixture, containing in each dose a few grains of iodide of potassium, and she was allowed a small quantity of wine. On the 7th of March the breathing had again become frequent, and the pressure on the heart so urgent as again to require thoracentesis, and 60 ozs. of the same red serum were withdrawn, with again temporary relief. Again, on the 14th, 50 ozs. were withdrawn, and on the 21st, 75 ozs. After each tapping there was decided relief, although by no means as much as might naturally be expected from the amount of fluid drawn off. It was chiefly evidenced by the effect on the circulating system—the face became always less suffused and the lips of a brighter colour, and the heart invariably rose up towards its natural position. Each time that the operation was performed I was led to do so more from the evidence of pressure on the heart than from the difficulty, or frequency, of respiration. On the occasion of the third tapping I found her almost pulseless, her face becoming livid; I rapidly introduced a trocar, and as the fluid came away she revived, and on this occasion made a very considerable rally for some days.

The internal treatment adopted was quite unsuccessful in producing any of the ends sought for. It was found impossible to mercurialise her, though there was not the least disposition for the mercury to pass away by the bowels; nor did any form of diuretic increase the flow of urine. She rapidly emaciated, had slight cough, with frothy expectoration

which was sometimes tinged with a very light streak of blood. At length her hands became oedematous, her appetite failed, and she rapidly sank. She died on the 30th of March. The following is the note of the *post-mortem* examination :—

"The body was much emaciated and anaemic. Liver considerably displaced, its lower margin extending down to the umbilicus, the right half of the diaphragm bulging into the abdominal cavity. Abdominal viscera, and left lung, and pleura, healthy. Heart displaced on the left side. Pericardium greatly thickened on its mediastinal aspect, blended above with a dense mass of tough elastic tissue, and below with the thickened pleura. It contained about 2 ozs. of clear fluid. The parietal layer of the membrane was also thickened and enlarged on the right side, where were numerous elevated nodules, about the size of a Spanish nut, some of which were extremely congested. On the anterior surface of the heart was a group of very small nodules, similar to those on the parietal portion of the membrane.

"The right pleura contained 80 ozs. of the same reddish serum as was drawn off during life. The parietal pleura was greatly thickened throughout and covered with smooth round knobs, about the size of a walnut, some of which were deep plum colour, and others pale yellowish white. Several of these tumours grew also from the costal pleura. The mediastinal pleura reached an inch in thickness, and was found to be continuous with a large mass of tissue which occupied the entire anterior mediastinum. This was found to form an irregular tumour, continuous with the neighbouring serous membranes, and completely enveloped the arch of the aorta and its branches, as well as the cava and innominate veins, and lay around the front and sides of the trachea. The vessels were all quite pervious, and their calibre seemed unaltered. On section this tumour was found to be composed of rounded masses of a soft elastic structure, bound together by a certain amount of ordinary connective tissue. The nodules in the pleura and pericardium were found to have the same properties on section.

"The right lung was quite compressed, resembling the tissue of the spleen, quite airless, and covered by a thick, tough layer of structure, similar to the degenerated costal pleura, but more even on the surface. There were not any adhesions at any part of the pleural cavity, and the surface was glistening, and appeared to be covered by a normal serous coat.

"Brain not examined."

Microscopic examination, performed by Dr. Yeo, showed the greater part of the tumour to be made up of small, spherical, granular cells, of uniform size, connected together by a very small quantity of slender, structureless, intercellular substance—in short, to be a strikingly characteristic example of a *small round-celled sarcoma*. The dark parts were

found to be extremely vascular, and in many places studded with small extravasations of blood, which gave these portions of the tumour the appearance of true *haemorrhagic sarcoma*.

I consider that it was not possible in this case to have diagnosed the existence of the malignant disease up to the time of the first tapping, for the dulness and absence of respiration caused by the pleuritic effusion joined on so intimately to that caused by the pressure of the tumour as to leave no intervening space by which the boundaries of a tumour could be defined. There was no venous congestion, nor enlargement of superficial veins, the malignant growth (as the *post-mortem* examination showed), being of that soft, yielding nature which allowed veins and arteries to pass through it uncompresed; and, thirdly, on account of the diminished size of the heart and the intervening fluid, there was no intensification of the heart's sounds through the malignant mass.

It becomes another question, whether, after the first tapping, a more correct diagnosis should not have been made. I did, in fact, pronounce that the case was most probably one of secondary pleuritis, for the following reasons:—1st. The colour of the fluid drawn off—it was not serum, tinged with blood, but serum, with which blood was intimately and permanently blended. 2ndly. Because the relief afforded, although considerable, was not in proportion to the amount of fluid drawn off. And 3rdly. Because there was no corresponding change in the physical signs after the removal of large quantities (on one occasion 60 ozs.) of fluid from the chest.

The diagnosis so far was frequently repeated after subsequent tappings, and this additional reason assigned that the system refused to respond to any line of treatment adopted. No medicine which was administered seemed to have any legitimate effect on the system, and at last further paracentesis was declined, on the ground that it was not the amount of fluid in the chest which was causing the patient's death, but some organic disease from which the constitution was suffering.

But the question remains, whether the diagnosis of *malignant disease* ought not to have been made. The only certain point upon which this diagnosis could have been founded was the nature of the pleuritic fluid. To this point Rousseau has paid most particular attention, and the summary of his observations is that, although the existence of sero-sanguineous fluid is highly diagnostic of the serous membrane being affected with cancer, it does not afford absolute proof of such, and, accordingly, he begins by saying:—"I need not tell you that we possess no positive sign by which to recognise cancer of the pleura, yet if in a woman affected with cancer we find pleural effusion slowly supervening, we may conclude that the bronchial glands and the pleura are themselves the seat of cancerous degeneration, and the nature of the fluid drawn off

will have an especial signification." It will be observed that in the case before us the two first indications were altogether wanting. There was no cancerous development in any other part, and the accumulation of the fluid was very rapid. We had, therefore, only the nature of the fluid to guide us. Influenced by this alone, however, Trousseau pronounced a case operated on by Dr. Barth to be cancer of the pleura, and did so from the recollection of one under his own care several years before.

This latter case is so similar to that of Margaret Clarke (except in the existence of an external cancer), that I have ventured to transcribe it for the information of the Society:—"On the 9th of November, 1844, a woman, aged fifty-four, suffering from cancerous atrophy of the right breast, became my patient in the Necker Hospital. She had been several months in the St. Louis Hospital for rheumatic pains of the limbs, unaccompanied by any general disturbance of the system. She was having some vapour baths, when, on the 20th of November, returning from the hot room, she felt a chill, and was attacked with acute pleurisy on the right side, which, presenting nothing special in its symptoms, was treated by bleeding, blistering, digitalis, and calomel. About the 20th of December the effusion, far from diminishing, had increased considerably, and continued increasing until, at the end of December, it had reached the clavicle and supra-spinous fossa of the scapula. By the beginning of January enlargement of the chest was visible. The dulness anteriorly had transgressed the median line, and the heart was displaced a little to the left side. On the 20th of January the dulness had passed four centimetres beyond the median line, and the heart was still more displaced, and the liver could be felt below the false ribs. Notwithstanding this condition, the patient had no dyspnœa; sometimes in the evening slight orthopnœa. There was well-marked fever, puffiness of the face, and œdema of the chest. On the 24th, paracentesis seemed to be absolutely necessary, and was then performed in the usual manner. There were no fits of coughing while the fluid (which was bloody) was escaping. The improvement which followed the operation was but slight. The stethoscopic phenomena were unaltered. From the 1st to the 11th of February the patient's condition remained stationary; but, on the latter day, erysipelas set in. The effusion increasing, and threatening to suffocate her, I again performed paracentesis, and again drew off sero-sanguineous fluid. The œdema of the chest increased, her strength failed, and she gradually sank. At the autopsy we found the pleura cancerous, and covered throughout with fungoid tumours of encephaloid growth."

It remains only to observe upon the age of the patient and the rapidity of the growth of the disease, and these both may be considered as intimately connected with this form of carcinoma. Cruveilhier and all subsequent pathologists have observed that this form of malignant

disease (of which I have never seen a more characteristic specimen) is that to which the young are most liable,^a which grows the most rapidly, and which is so frequently attended with haemorrhages, that while they sometimes have actually proved fatal, it is very rarely that a *post-mortem* examination does not afford proof of their having occurred, and on more than one occasion.—*February 28, 1874* (Museum Carmichael School).

Caries of Os Calcis—Excision of Bone.—MR. TYRRELL exhibited a very remarkable-looking bone—an os calcis—which he had removed from a woman, on the 29th of October, for caries. A portion of the bone had, on a previous occasion, been gouged away, but it did not cure her, and she returned to hospital in the middle of October; and on the 29th he removed the whole bone by an operation almost similar to that described by Mr. Holmes. The bone exhibited was remarkably hypertrophied, and springing from it, on its external surface, were carious stalactitic growths, while on the under surface there was a large cavity excavated by the gouge at a former operation, and which was the seat of extensive carious disease. It would have been perfectly impossible in this case to have performed the periosteal section, as was quite evident from the appearance the bone presented. The woman had made an excellent recovery.—*February 28, 1874.*

Sarcoma of Arm—Amputation at the Shoulder-joint.—MR. TYRRELL said in the beginning of last January a girl came under his care, who was apparently in perfect health—a strong, active, intelligent girl—and on examination it was found there was a large tumour growing from her right arm. On further inquiry he learned the following history:—She was aged twenty-seven years, and had been in general employment in America. In 1871 she gave her arm a slight twist, but the effect of it soon passed away, and shortly afterwards she noticed on her forearm a small kernel. She consulted a medical man, who ordered some embrocation. The tumour, however, attained the size of an egg, and was removed in the Massachusetts General Hospital, in July, 1872, and apparently cured. In January, 1873, another tumour made its appearance on the arm, above the elbow. She went into hospital, and it was removed in July, 1873. Shortly afterwards it grew again in the place where it had been last removed, and then she made up her mind to come to Dublin and place herself under Mr. Tyrrell's care. On inspection the arm was semi-flexed, and the wrist flexed. She wore a small splint under the palm, which allowed her to write, which she could do beautifully. He found a large tumour on the arm, elastic to feel, and

^a In the Richmond Hospital Museum, among other specimens, is one of very extensive haemorrhagic sarcoma in a child one year old.

which had grown very quickly. He saw the cicatrices of the tumours that had been removed, and further learned that when the patient was in hospital in America the surgeons there would have disarticulated the shoulder-joint if she had consented to the operation. His colleagues and himself came to the conclusion that nothing could be done for the girl but amputation through the shoulder-joint, and the patient having consented, he removed the arm on last Wednesday morning. Having made a section through the tumour, it was found to present a remarkable encephaloid appearance. The bone was laid bare; and also, what was more serious, on splitting up the triceps muscle it was found to be infiltrated with the same brain-like substance of which the tumour was composed. On cutting through the line of the cicatrix of the former operations, he found a recurrence of the disease at these points also. His colleagues, Drs. Coppinger and Hayes, had examined the specimen, and both thought it was an example of the recurrent fibroid tumour belonging to the class of round-celled sarcoma which is recurrent. There was no glandular enlargement, and the disease seemed not to have spread so high as the necessary lines of the incision; but it was a question whether it would not recur. Some time ago such a tumour as this would be classed as encephaloid. In its superficial features it presented the appearance of the most malignant encephaloid disease.—*February 28, 1874.*

Vesical Calculus in the Female Spontaneously Expelled.—DR. SINCLAIR said he wished to bring before the Society an interesting case of what he might term the parturition of a stone from the female bladder, and to exhibit the calculus. The woman from whose bladder the stone was discharged was admitted some time ago into Sir P. Dun's Hospital, was twenty-five years of age, and had been married not long previously. She was a native of England—of a dark, sallow complexion. She had been suffering for two years from almost constant pain, more or less severe, and latterly with bearing down sensations, considerable increase of intensity of pain, and incontinence of urine. Her face indicated great distress, her body was attenuated, and a further investigation of her symptoms indicated that her bladder was affected—in other words, that a condition of cystitis existed. On making a vaginal examination, the finger, on passing the vulva, was immediately arrested by an immovable tumour of stony hardness, and of considerable size, pressing backwards towards the rectum. It seemed as if there was some tumour arising from the posterior surface of the anterior pelvic wall pressing the anterior wall of the vagina backwards. The examination caused considerable pain. On passing a uterine sound into the urethra, the instrument was arrested, less than an inch from the orifice, by a hard surface, evidently a stone of considerable size, which had distended

the neck of the bladder and posterior portion of the urethra, and had become, as it were, encysted in that position. The urine could be seen constantly trickling from the meatus. The finger could not reach above the tumour, so as to touch the cervix uteri, but a suprapubic examination led to the belief that her statement as to her being in the fourth month of pregnancy, or "thereabouts," was correct. Taking all the circumstances of her case into consideration, Dr. Sinclair determined; a few days after her admission, to cut down upon the stone, and to treat the case subsequently as if it were a urethro-vaginal fistula.

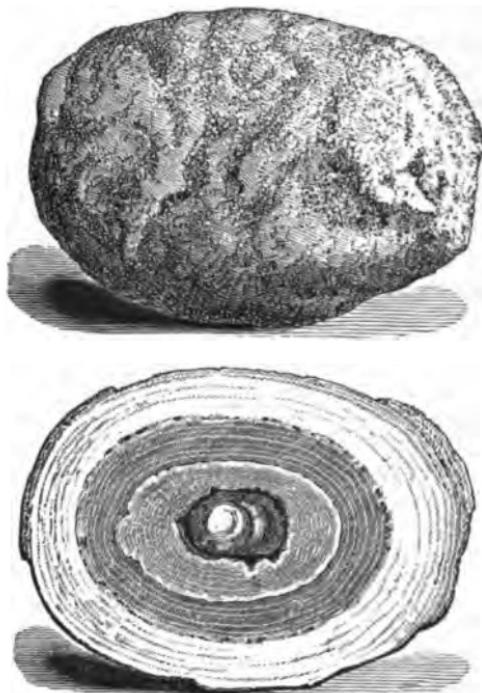
When the woman was placed on the table for operation, it was suggested that the condition of the parts might be caused by some bony growth from the pelvic surface of the pubes, which had penetrated into the bladder and urethra. An endeavour was then made to pass a flat silver female catheter all round it, which succeeded in proving there was no connexion between the supposed tumour and pelvis. However, the stone was dislodged, and pushed backwards into the bladder. It was suggested then to crush, but Dr. Sinclair determined not to sanction the operation—firstly, because of the possibility that the nucleus of the stone might consist of some foreign substance; secondly, it being so large, several sittings would be essential to break it up and get rid of the débris, which the bladder, in its existing condition, was ill calculated to bear with impunity; and lastly, because of the existence of pregnancy. On the evening of the same day upon which the calculus was dislodged, some feverish symptoms set in. The day following, symptoms of threatened abortion were present, and on examination the stone was found in its original position. Hæmorrhage took place, not profusely, also uterine action. The fœtus was discharged in a short time, and in 48 hours afterwards the membranes and placenta were expelled.

Dr. Sinclair now determined to permit her to remain undisturbed till such time as involution had been completed, and then to carry out his original intention. However, in a little less than three weeks after her abortion, he was sent for one evening and informed that his patient, while sitting on the night-chair, and when forcing down, had passed the stone. On making an examination about twenty minutes after the stone had been passed, he found an opening about an inch from the meatus, through which the stone had issued; it was only large enough to allow the easy introduction of the index finger, or probably about half the diameter of the stone. Dr. Sinclair came to the conclusion that he would not interfere with the case for twelve or fourteen days, in the hope that the orifice would still further contract. At the expiration of that time it had become so narrowed that it would not more than admit a No. 12 catheter. He now pared the edge of the opening, and used sutures in the usual way. On the 11th day the sutures were removed, and the union was found to be perfect. The bladder soon regained its

health and recovered its power. She entered hospital on the 11th of June, and on the 6th of August went to the country quite well. She has since had a child at full term, and at present enjoys perfect health.

Dr. Sinclair exhibited the stone, which measured $2\frac{5}{16}$ inches in length, $1\frac{1}{4}$ in thickness, and $1\frac{8}{9}$ in width. It weighed 2 ounces and 37 grains.

The following woodcuts are full size, and represent the stone previous and subsequent to division.



For the section from which one of the woodcuts is taken, Dr. Sinclair is indebted to his friend and colleague, Dr. Bennett.

Both ends of the oval were rough, the smaller and anterior extremity being very much so; this was supposed to have been caused by the frequent striking of the sound against it. When divided, three distinct formations were observed—an external whitish layer of ammoniacomagnesian phosphate, an inner layer, yellowish, composed of pure lithic acid, and a nucleus of oxalate of lime. He agreed with his colleague, Dr. Bennett, who considers the nucleus to have been originally a renal calculus; that during the formation of the lithic acid layers there was no irritation; and that it was only during the deposition of the external coating that cystitis took place, which, together with the encystment of the stone, gave rise to symptoms compelling her to apply for

relief. Dr. Sinclair resumed his observations upon this case, and concluded by stating—the practical deduction from its history was that which nature had indicated—namely, that the safest and most convenient method of treating such cases was to cut down upon the calculus, remove it, and act subsequently as if it were vesico- or urethro-vaginal fistula.—*February 28, 1874.*

Cerebral Haemorrhage.—DR. LYONS said the parts he exhibited were taken from the body of a man who died suddenly in the Whitworth Hospital. He was a labourer, aged forty-five, and came into hospital on the 18th February, suffering from pain in the region of the heart, with swelling of the legs. It was found that the limbs were anasarcaous, and he was, in fact, suffering from general dropsy. The urine had a specific gravity of 1010. He was placed on the ordinary form of treatment, and expressed himself considerably relieved. He got one or two baths, and seemed to be progressing tolerably well. On the morning of the 26th he complained of feeling worse than he had done for some days. His temper was very irritable. His bowels were moved twice before the dinner-hour. He eat the ordinary dinner of the hospital, and after it he complained of heaviness, with dimness of sight, but was talkative, and conversed with the patient in the neighbouring bed, with whom he had struck up a friendship, and, on the whole, was considered by those about him to be improving. At four o'clock on the same day he made an effort to get out of bed, but fell down in a state of unconsciousness. He was immediately examined by the clinical clerk, and was found to be stertorous, with paralysis of the right arm and the right leg. His condition progressed from bad to worse; the stertor became deeper and deeper, the coma more persistent, and he died at half-past ten that evening. This was an unusual termination for this form of disease, and they looked, therefore, with considerable interest to the result of a *post-mortem* examination, which was made with great care by Dr. Yeo. They found a considerable amount of general anasarca. The abdominal cavity contained two quarts of a pale straw-coloured fluid. The liver was enlarged, and the kidneys also were enlarged, and in a state of fatty degeneration.

The pericardium contained six ounces of pale straw-coloured fluid, and in the right pleural cavity there was found fifty-six ounces of fluid of the same character. The left lung was considerably compressed. The tissue of both organs was, however, healthy. They then looked to the state of the heart and brain with considerable interest. The heart presented a very remarkable example of extreme hypertrophy, which they knew often occurred in connexion with chronic renal disease.

There was considerable thickening of the walls of the ventricles; they were fully twice as thick as natural. It was to be observed that the

valves were tolerably healthy; there was a slight amount of deposit to be found on the sigmoid valves, but they were competent, and the mitral valves were competent also. On passing up the aorta they found a pouch-like dilatation of the vessel just where it received the impact of the blood forced from the hypertrophied left ventricle. On examining the brain, it was found that there was a considerable amount of serous effusion, flattening the upper surface of the ventricle considerably, depressing the convolutions, and producing a rather remarkable appearance of the superior surface of the brain. There was a certain amount of serum, but not considerable; but, on making a section, they found a very large haemorrhage, which evidently was poured out with great force, for it had exercised a disruptive effect on the cerebral tissue, tearing through the cerebral tissue of that hemisphere, and breaking down a large part of the corpus callosum. There were from three to four ounces of blood—a very considerable amount of clot in that situation. On looking to the inferior surface of the brain, they did not find much that was very noticeable. The organ was rather dry in that situation. The main force of the haemorrhage had taken place evidently in the body of the left hemisphere, being poured out with great force, and disrupting the cerebral structure in a very remarkable manner.

The case was noticeable in several respects. It was remarkable, as showing a complete amount of fatty degeneration of the kidney. This existed in connexion with the hypertrophy of the heart. Then there was the copious effusion into the left hemisphere producing death within a period of three hours and a-half from the seizure. Death occurring so soon from this particular lesion was comparatively rare.

Here they had an instance of true apoplectic seizure, and the escape of a very considerable quantity of blood. Death in such a comparatively short period as three hours and a-half was to be accounted for by so great an amount of destruction of the cerebral tissue; but, from his experience, death taking place so rapidly from effusion into the body of one of the hemispheres was comparatively rare.

Dr. Lyons said he had seen a very remarkable case of a female attacked in a similar way, and the haemorrhage not larger than was experienced here, but fully as large, was found to have taken place in the right cerebral hemisphere; but death did not ensue for many days subsequently. The present case, then, was remarkable for the situation of the haemorrhage, the amount of it, and the suddenness with which death occurred.—*February 28, 1874.*

Diphtheritic Ulceration of the Colon.—DR. YEO showed the intestines of a man who had been under Dr. Banks' care, in the Hardwicke Hospital, for four days. He had been ill two days before admission with colic, purging and vomiting. While in hospital he lay coiled up in bed in a

collapsed state ; temperature below normal, persistent pain in the abdomen, and constant typhoid diarrhoea.

Autopsy.—The peritoneum was quite healthy, as were all the abdominal viscera, except the intestinal tract. The lining membrane of the oesophagus and stomach and upper part of the small intestine was quite healthy. About the lower third of the jejunum the mucous membrane commenced to be thickened and congested. In the ileum it was plum-colour, greatly thickened, very brittle ; but there were no signs of ulceration or enlargement of the solitary or agminate glands. The entire of the large intestine was thickened and congested, and its mucous surface was closely studded with prominent yellow patches, about an inch in diameter, resembling strips of chamois leather, their long axes being generally parallel with that of the gut. In some places this membrane-like structure was absent, and a deep, ulcerated surface remained. The intermediate membrane was much engorged.

Dr. Yeo said the case was worthy of note from the rapidity of the fatal result and the amount of the lesions, which he considered of a diphtheritic nature, found after an illness of six days.—*February 28, 1874.*

Congenital Absence of both Vasa Deferentia.—DR. T. E. LITTLE made the following remarks :—The present specimens were removed from the body of a robust and well-nourished dissecting-room subject, aged, apparently, between forty and fifty. The body presented all the ordinary masculine peculiarities in the usual degree ; there was a strong beard on the chin, and the usual development of pubic hair. The external sexual organs were well developed (so much so, indeed, that the examination of the parts of generation was commenced for the purposes of class demonstration), the penis was of rather larger size than ordinary, and perfectly formed, except for the existence of a tight congenital phimosis ; the scrotum was of full size, and the two testes—apparently normal in situation and dimensions—occupied it. On proceeding to the minute dissection of the genital apparatus, however, I was immediately struck by my inability to discover any vas deferens on either side. In the parts I exhibit, which include the regions concerned in the entire course of these ducts, we fail to find (with one probable exception, to which I shall presently allude) any trace of their presence. If we follow out the examination of the parts of the generative system *seriatim*, we find the following to be the condition of things :—The testes proper and their coverings are normal on both sides ; they are of fair average size and of proper firmness and consistence ; a section made through the body of the organ of the right side shows its glandular structure to be perfectly healthy ; the tunicae vaginales are entirely normal, with no evidences of recent or remote disease. On both sides the condition of the epididymis is, however, remarkable—it is undeveloped, and wanting in its lower

parts. On the left side this organ ceases to exist immediately below the globus major, terminating in a rounded blunt extremity, having no duct proceeding from it, and no connexion—except that of the most delicate fascia—with the parts of the cord. On the right side there is a more extensive development of it, but just above the situation of the globus minor it terminates in a still more obtuse and rounded extremity, equally unattached to surrounding parts. The convoluted tubes of the portions which are present can be seen to be on both sides tensely distended by a light-coloured semi-solid matter, which the microscope shows to consist in great mass of spermatozoa. The most careful dissection failed to detect a vas deferens, or any remains of it, or of a vas aberrans attached to any part of this truncated organ on either side. An unusually well-developed hydatid of Morgagni is present on both sides. The cord, as followed up towards and through the inguinal canal, was enlarged and thickened—this condition being due chiefly to the existence of a very varicose condition of its veins; its arteries, too, were large, two well-sized vessels carrying the ordinary coarse dissecting-room injection more completely than, I think, we usually find to be the case. In the cord of neither side could I succeed in finding any trace whatsoever of either vas deferens: on the left side I dissected out longitudinally from below upwards the different parts from one another, and on the other side I made a series of transverse sections, and in neither could I discover any structure which could be considered even a remnant of the canal sought for. In the course of these dissections I met with no appearance of the organ of Giraldès on either side. On proceeding to the further examination of the genito-urinary organs, we observe that the bladder and ureters are normal and healthy; the prostate is also normal in all appearances, and possesses a well-marked sinus pocularis. On the left side of the bladder no trace of a vas deferens can be discovered in this part of its course: a rudiment of a left vesicula seminalis does, however, exist, presenting the appearances of a small irregularly-shaped closed sac, containing an opaque pale-coloured fluid. This structure, which presents both externally and internally an aspect unmistakeably identifying it with the vesicula seminalis, has no excretory canal, and, beyond mere fascial attachments, there is no trace of the ejaculatory duct connecting it with the prostate or prostatic urethra. The fluid it contained was devoid of spermatozoa. On the right side of the bladder we have present what I take to be the only discoverable trace of either vas deferens, consisting of a short, fibrous, impervious cord, resembling in external appearances and feel a normal vas deferens, but more minute: it is about half an inch in length, and is lost below in a small, nodulated, fibrous mass, which, from its situation and appearances, I think we may take to be the rudiment of the vesicula seminalis of this side. Here, as on the other side, we find no discoverable trace of an ejaculatory duct.

Remarks.—The particulars of this curious abnormality are suggestive of several interesting questions, upon which I may be allowed to make a few remarks. The phenomena of the specimen may be briefly summed up—viz., absence of the lower part of the epididymis on both sides, and of the entire of the *vasa deferentia*, with a rudimentary condition of the *vesiculae seminales*, along with a normal and healthy condition of all the rest of the generative organs.

The first question which appears to suggest itself is—Is this defect a congenital arrest of development, or a result of disease? I think the difficulty of conceiving any form of disease—so completely obliterative, so localised, and so devoid of any traces throughout the whole region of the absent structures—makes it impossible to answer the question in any but the one way; but perhaps the completest answer comes from the consistency and almost rigid logic of the explanation which flows from a study of the development of the genital system. Looking upon the specimen in this light, as one of congenital fault in the development of certain portions of that system, I am more especially anxious to record the particulars of it in detail in the Society's *Proceedings*, in order to place it side by side with a case of somewhat similar—though more extensive—defect of development in the female, already reported and elucidated, with admirable care and clearness, by Dr. Cruise, in that publication.*

Let us then examine what lights the facts of embryology are able to throw upon the anatomical conditions met with in the present case. It has been long known that the testis and its excretory apparatus (epididymis and *vas deferens*) are developed from essentially independent and different pieces of the embryonic blastema, so that the congenital absence of the one of these while the other remains is not difficult to conceive; but a more detailed examination of the development of these organs permits us to arrive at a much closer interpretation of the particulars of the deficiency met with here than is implied in this more general statement. The researches of modern embryologists go to establish the fact that there are four distinct centres of development (at least) concerned in the evolution of the internal organs of generation; and the following may be taken as a tolerably correct statement of what is the best received teaching on the subject:—The testis is developed separately from a small embryonic mass, which has been called the (1) generative gland (of Kobelt); the globus minor, and body of the epididymis, the *vas deferens*, *vesicula seminalis*, and the minute “organ of Giraldès” are the results of the development of the (2) Wolffian body; the hydatid of Morgagni, and the sinus pocularis are the only rudimentary remains (in the male) of that structure (which takes so important a share in the formation of the female genital organs) which is called the (3) duct of Müller; recent

observations, finally, would appear to show that the upper part (*globus major*) of the epididymis is developed, not from the Wolffian body (as is the rest of this organ) but from an independent piece of blastema, which (after the manner of nomenclature which prevails in the other instances) we may term the (4) organ of Cleland. Now, it can be observed at a glance that a defect of the development of the second of these embryonic elements—viz., the Wolffian body, would produce an absence of parts almost exactly coextensive with the missing organs in the present specimen; and that the supposition that some blight had fallen upon this body in an early period of foetal life is competent to explain the phenomena here met with. I would more particularly draw attention—as the most special feature in the present specimen—to the presence and full development in it of the *globus major* and upper part of the body of the epididymis, along with the complete absence of the rest of the organ, as at the same time entirely in accordance with the last item in the above scheme of development, and as, conversely, yielding an argument in confirmation of the doctrine implied in it. The presence of, on one side at least, an undoubted development of the *vesicula seminalis* is the one fact in this case unexplained by the above scheme and the assumed hypothesis. The exception I am unable to account for. May not the present observation suggest that a more profound knowledge of development would prove this small organ to have an embryonic source independent of that of the organs to which it is related? I have made especial reference to the presence of those two insignificant organs—the *hydatid of Morgagni* and the *sinus pocularis*—because it shows that the blighting influence, which so extensively involved the Wolffian bodies, did not at all affect the neighbouring duct of Müller.

The perfect growth and health of the testes, in such a case as this, seems, at first sight, a little remarkable; but, besides the reasonable explanation of it, which the preceding short sketch of the development of the genital system supplies, it is one which is, moreover, quite in accord with the results of pathological anatomy, and of experiment. We are all familiar with occasional cases of very long standing obliteration of the duct of the testis, after gonorrhœal epididymitis, unfollowed by any atrophy of the gland. M. Gosselin, more particularly, has studied and illustrated cases of more or less permanent pathological obliteration of the canal of the epididymis; but makes no allusion, in his writings, to atrophy of the testis as a result he has met with. Again, as long ago as in the time of Sir Astley Cooper, that distinguished surgeon, in the course of a series of comparative experiments upon the relative results produced on the nutrition of the testis by ligature of the *vas deferens*, and ligature of the *spermatic artery*, established the insignificant effect of the former of these operations; a result which has been confirmed by subsequent experiments by Mr. Curling and M. Gosselin.

Sir James Paget, in a lecture in the *London Medical Gazette* (Vol xxviii.), and Mr. Curling in his work on *Diseases of the Testis*, have each investigated and written upon this deformity; and have there collected together almost everything that is to be known about its literary history. They give numerous cases of reference; but neither in the instances cited by these writers, however, nor in any other reports of cases I have discovered, do we meet with the same total bilateral defect as occurs in this case. In almost all the others the deficiency is unilateral and partial, the absence of the duct being, in some instances, confined to the testicular, in others to the urethral end of it.

Fig. I.



Right Testis—Tun. Vag. removed.

Fig. II.



Left Testis—Tun. Vag. opened.

Figs. I. and II. represent the deformity in the present case. In Fig. I. the tunica vaginalis is removed from the right testis. In Fig II. the left tunica vaginalis is opened and thrown back.—Feb. 28, 1873.

Excision of Knee-joint.—MR. TYRRELL said that about a fortnight ago a girl, twenty-six years of age, came to him to be treated for disease of the knee-joint. She stated that two years before she suddenly got a pain in the knee without any assignable cause. She had not received any injury, nor had she ever been affected before. It gradually got worse, and twelve months since rendered her incapable of walking. When she presented herself at the hospital it was found she had a large knee; it was very much swollen, somewhat uneven on the surface, and elastic, presenting all the appearance of the pulpy degeneration of Brodie. When she was put under ether, and examined, there was a distinct

crepitus felt and heard. A consultation was held as to what operative proceeding—whether excision or amputation—should be adopted, and the former method was determined upon, particularly as she was most unwilling to have the leg removed. On Wednesday he operated, and on cutting open the joint the synovial membrane was found much thickened, of gelatinous consistence, and presenting all the characteristics originally described by Brodie. The articular surface of the femur was eroded at different points, and the cartilage, where present, was easily removed. The patella was not much engaged, but he removed it, according to his usual practice. The head of the tibia was more engaged than the femur, and towards the outer side there was a cavity about half an inch deep, and the size of a shilling. On section the bones were found to be perfectly healthy, and, as far as he could see, it was a fair case for excision. Up to the present the girl was doing remarkably well. This case was one that was perfectly incurable by ordinary topical treatment, and in former times the remedy was always amputation. Some surgeons thought that cases where the synovial membrane was affected by pulpy degeneration were unsuited for resection. This was a problem yet to be worked out. For his own part, he thought the cases he had operated on had as good a chance of getting well as those that had been operated on for more extensive disease of the bones, without the pulpy degeneration of the synovial membrane.—*March 7, 1874.*

True Ankylosis of the Hip.—DR. BENNETT exhibited a specimen of true ankylosis of the hip-joint, which presented the remarkable complication of a false joint established in the neck of the femur. He said—Of its history or dissection we have no knowledge whatever, except such as the specimen furnishes. It has been for several years in the anatomical collection of Trinity College. The appearance of the innominate bone permits the inference that its owner, a female, had reached her full size before any disease of the hip-joint took place. There is no trace of any intra-pelvic abscess having occurred, nor of any perforation of the bottom of the acetabulum; and there is no excessive thickness of the bone along the line of the brim of the pelvis, a character very constantly present in specimens in which ankylosis has resulted from the so-called strumous form of *morbus coxae*. All these points justify the conclusion that the inflammation of the joint which led to the ankylosis was due to some one of the rarer forms of disease which occur after growth is complete—forms which, though rarer in practice than the so-called strumous *morbus coxae*, yet much more frequently terminate in true ankylosis. The external surface of the ala illi suffered from slight inflammation. The opposite surface presents also, but to a lesser degree, traces of the same action. In the section which has been made through the obliterated hip-joint, passing from the top of the sciatic notch horizontally forwards to the

obturator foramen, no break in the pattern of the cancelli indicates the outline of the head of the femur, except at one part, the upper extremity of the depression of the Haversian body of the joint. Here, and for the entire of this space, the original line of the head of the femur is distinctly seen. The plane of the false joint, which intersects the neck of the femur, if the term plane can be applied to so irregular a joint, passes from the border of the acetabulum obliquely downwards and outwards into the lower part of the trochanteric region of the femur. The surfaces of this false joint are similar to those usually found in false joints in long bones, but they are so irregular as to have permitted but little motion of the limb—in fact but little more than a slight yielding of the limb on the pelvis. A most remarkable feature of the upper part of the femur is the total disappearance of the lesser trochanter, which, if present at all, is to be found only in a small spur of bone near the posterior margin of the shaft. In the absence of any knowledge of the exact attachment of the tendon of the psoas muscle, it appears useless to investigate this point. The external aspect of the great trochanter is only changed by a slight inward inclination of the summit of the process, the result of the altered bearing of the upper extremity of the bone to the pelvis and to the tendons of the glutæi muscles. One point further requires particular notice in this specimen, as I think on it mainly depends the exact determination of the relation of the ankylosis to the false joint. A spur of bone is seen projecting over the centre of the surface of the false joint on the upper part of the femur. When the bones are fitted to each other, it is evident that this spur was originally part of the lip of the acetabulum and ossified cotyloid ligament. I have attempted to put the details as briefly and as clearly as possible before my readers; but I fear that without an examination of the bones many will be slow to appreciate fully the importance of this piece of bone in interpreting the significance of the specimen.

It is evident to any one familiar with the forms of fracture of the neck of the thigh-bone, that the line of the false joint in this case is entirely different from the line of fracture in any of the various injuries, either intra- or extra-capsular, commonly met with in the neck of the femur. Yet it is equally clear that the false joint is the result of a fracture. What, then, is the explanation of its exceptional character? I hold that the only explanation admissible is, that a fracture of the neck of the femur has taken place subsequently to the formation of the ankylosis of the hip-joint. In support of this interpretation of the specimen, conclusive evidence exists in the spur of bone to which I have directed attention above. This could not have been detached from the brim of the acetabulum and united to the lower side of the false joint, except by a fracture occurring subsequently to ankylosis of the joint, nor is the cotyloid ligament, of which this spur was a part, ossified, as it has been prior to

the detachment of the spur, by any condition of the joint except ankylosis and chronic rheumatic arthritis.

Again, the path of the fracture, although unlike that of ordinary intra-capsular fractures, is strictly within the limits of the attachment of the capsule of the joint, and, therefore, necessitates the conclusion that in this instance true ankylosis, if we regard it as resulting from the fracture, has taken place between the head of the bone and the acetabulum, a condition as yet unrecorded, and apparently the most unlikely that we can imagine, for wasting—not the increased action necessary for ossification—is the invariable rule in this injury. In using the words "as yet unrecorded," I express my dissent to Sandifort's interpretation of a case figured in his *Museum Anatomicum*.

Sandifort appears to have had no knowledge of the life history of the specimen which he represents, for he says nothing of it in his description, which is as follows:—

"Os coxae sinistrum cum suo femore, post fracturam colli, sic degeneratum, ut caput intra acetabulum remanserit, cum eo concreverit, in tumorem inaequalem insignem sese extenderit, et huic pars superior femoris sese accommodaverit."

The words "sic degeneratum," used, I think, in the same sense as I have used the word "wasting," seem to be very inaptly used in the description of a body which has grown into a tumour, and would suggest that Sandifort, who was familiar with the non-union of intra-capsular fractures, considered even the ankylosis a process of wasting. From the resemblance of these two cases, I am inclined to consider them as due to the same cause—namely, fracture subsequent to ankylosis. I think I have assigned sufficient reason for this conclusion in my own case at all events. It is most remarkable that in Sandifort's specimen, the upper part of the femur resembles this specimen, not only in its general features, but also in the absence of any trace of the lesser trochanter.—
March 7, 1874.

Separation of the Third and Fourth Cervical Vertebrae; Rupture of the Spinal Cord.—DR. A. W. FOOT presented these specimens to the Society, observing that one of his surgical colleagues kindly gratified his interest in this remarkable case by allowing him to do so. The specimens were taken from a stout large woman, aged fifty, who, on the evening of Thursday, 22nd January, 1874, fell down fourteen steps of a steep staircase, landing on her head in a narrow recess, not sufficiently wide to permit of her body extending itself. When lifted up she was found to be paralysed as to sensation and motion in the four extremities. She was admitted to the Meath Hospital on the evening of 25th January. Her head was perfectly clear; she had great pain in the back of her neck, aggravated by any movement; there was anaesthesia to pain,

touch, tickling, and temperature, from the clavicles downwards; and slight reflex action was excited by tickling the soles of the feet; the upper extremities jerked frequently; the bladder and rectum were paralysed. She had a sense of "burning" in the feet and legs, but there was no extreme rise in temperature. No lesion of the spinal column could be detected by manual examination. She lived for forty-two days. The cause of her death was hypostatic pneumonia. Bed sores appeared during the last week, but did not go beyond their first stage.

The injury sustained by the spinal column was a separation, without permanent displacement, between the bodies of the third and fourth cervical vertebrae, or, rather, between the body of the third cervical vertebra and the upper surface of the intervertebral disk, lying between it and the fourth cervical vertebra. The lateral articulations were not injured. There was no obvious laceration of the anterior or posterior common ligaments; the preparations for reunion of the separated bone and cartilage were apparent in a good deal of ossific matter deposited along the line of separation between the parts, which, however, still continued disunited, and distinctly movable.

As to the spinal cord, there was no trace of extravasation external to the theca adjacent to the seat of injury; the dura mater spinalis was on its outer and inner surfaces thin, shining, and smooth; the other membranes were uninjured and transparent, but the finger passed along the posterior surface of the cord, to estimate its consistence, felt a sudden dip, or depression, in the cord, opposite the seat of injury; this dip was much more obvious to the sense of touch than of sight, until a longitudinal incision had been made in the posterior median fissure, when a rent, or rupture, transverse, almost completely severing the cord across, was found corresponding to the depression felt by the finger; the seat of the rupture had the appearance of a small cavity, or space, produced by the separation and retraction of the nervous matter at the seat of rupture; the vicinity of the injury was remarkably free from evidences of softening or inflammation. The cord, when removed from the body, and suspended in a jar, had the appearance of a circular constriction, as if a string had been tied round it at the place where it had been ruptured. Dr. Foot mentioned that Dr. M'Donnell had brought before the Society a remarkably similar instance of fracture of the spinal column in the cervical region, with *rupture* of the spinal cord at the seat of the osseous injury. In this latter case the patient lived for two months, and the fractured bones had become reunited. In reference to this case, Dr. M'Donnell had observed that the late appearance of bed sores—which was also very noticeable in Dr. Foot's case—was, probably, due to the clean and unirritating nature of the lesion of the cord, as contrasted with the effect of such injuries as bruise or lacerate the cord.—*March 14, 1874.*

Sero-cystic Tumour of Heart.—MR. TYRRELL said during last summer, a woman was under the care of his colleague, Dr. Cruise, for scirrus of the breast, and he removed it. She remained well until two months since, and then began to suffer from some uneasiness in the site of the breast, which she thought was a recurrence of the disease, and within the last fortnight she came to the hospital. The cicatrix was hardened, and, apparently, the disease had returned; but what was still more remarkable, a small tumour, dark in colour and of the size of a walnut, appeared in the same situation. This gave her considerable uneasiness, at least mentally; there was no evidence of glandular contamination. Dr. Cruise thought a slight operation might be done for the removal of the cicatrix, but as it was possible that the cyst might be of a cancerous nature, he determined to remove the whole, and he did so on Wednesday.

Mr. Tyrrell now exhibited the specimen. The line of the cicatrix of the first operation was seen. It was harder than natural, and in fact it appeared as if the disease were returning in it. The cyst was of the size of a walnut, and somewhat lobulated on the surface, owing to a band of fibrous tissue that ran along it. When opened a quantity of sero-sanguineous fluid came away. It was found, on examination, to be one of the ordinary serous cysts described by Brodie in connexion with diseases of the breast. The peculiarity of this case was its extreme rarity. After amputation of the breast, in connexion with ordinary mammary disease, cysts were exceedingly common, and since Brodie published his lectures on the subject they were readily and constantly recognised; their contents varied greatly, some containing blood, others a blood-stained fluid or serum, &c. He did not think there had ever been exhibited, in that Society, a case where, in the cicatrix on the chest wall, or beneath it, after the removal of a scirrus tumour, a cyst became developed. The only question was, whether the cyst had anything to do with the cancer, or was a mere coincidence. It was a mere coincidence, for it was developed in the substance of the adipose tissue below the skin, and was in no way connected with the cicatrix. Paget remarked that, so far back as Hunter's time, cysts were frequently found in connexion with cancerous disease, and were known as cancerous hydatids of the breast. This was not the case here, for there was no mammary gland, that having been entirely removed; it was developed in the site of the mammary gland and in the adipose tissue attached to it. He supposed it might be said to be a cyst caused by the enlargement and fusion of the spaces or areolæ of the connective tissue. This was of importance in a pathological point of view, for, supposing the thickening of the skin had not taken place and there was no re-growth that would lead the surgeon to remove any part of the skin, he might be in a state of doubt as to whether it would be proper to remove the cyst or merely to puncture it. He thought they would agree with him that Dr. Cruise had exercised a

wise discretion not only in removing the cicatrix, but in taking the cyst away also, although it proved to be the ordinary simple variety described by Brodie.—*March 14, 1874.*

Myxoma of the Foot.—DR. WHARTON exhibited a section of a tumour which he had removed on the previous day, from the foot of a boy aged twelve. The history of the growth, as far as he could ascertain, was, that it began three years ago, and the patient stated that it was caused by his wearing a tight boot. He was brought to a bone-setter in the County of Louth, by his father, and that individual in the first instance applied leeches, and subsequently a cancer plaster, which resulted in the formation of a large ulcer, as represented in the cast now before the Society. On the inside of the tumour there was a small ulcer, and the lesser four toes were displaced outwards. On being asked, by the students at the hospital, what was the nature of this tumour, he was obliged to confess that he could not tell; and on its removal he was still at a loss as to its precise nature. All he could ascertain was, that it was more or less capsulated; the tarsal extremity of the metatarsal bone of the great toe seemed to be exempt from disease, and the capsule to be formed by an expansion of the outer portion of the remainder of that bone, and of the phalanges of the great toe. A thin section of the tumour showed that it was translucent, and so far removed was it from all appearance of bone, that with the ordinary metacarpal knife he easily made the section, there being no sensation whatever of grating. There was no trace of the metatarsal bone except at the part already noticed, but there was an outline of the last phalanx. The extremity of the tumour was surmounted by the nail. He was so much in doubt as to the nature of the tumour, that he looked through Lebert's plates, but could find none that exactly corresponded with the appearances presented by the section now exhibited. He also examined Paget's book, and although he found there sections of enchondromatous tumours, they did not correspond with this, nor in the Museum of the College of Surgeons is there an identical specimen. There were a few ecchymosed spots to be seen through the tumour. Drs. Barker and Foot had kindly examined the tumour microscopically, the latter pronounced it to be a myxoma, the former entertained a similar opinion.

He believed that tumours of this class spring from connective tissues, as of the brain, spinal cord, and nerves. They were also found in connexion with adipose and mucous tissues, and constitute one form of nasal polypi. In the present instance the disease originated from the medullary membrane of bone. This form of disease was rare, and particularly in children. The entire of the metatarsal bone of the joint was taken away, and the internal cuneiform bone, being soft, was also removed. The rest of the bones of the tarsus appeared to be perfectly healthy.—*March 14, 1874.*

Arterio-Capillary Fibrosis.—DR. GRIMSHAW exhibited the viscera removed from a man who had died in Dr. Steevens' Hospital from the effects of arterio-capillary fibrosis. The history of the case and of its progress was recorded by Mr. Charles Maturin, one of Dr. Grimshaw's clinical assistants.

Andrew S., aged forty-five years, a member of the Royal Irish Constabulary, was admitted to Steevens' Hospital on the 5th February, 1874.

The patient was not very intelligent, and not very clear regarding the history of his case, which, after much trouble and cross-questioning, was found to be as follows :—

Until about eight years ago he had enjoyed almost uninterrupted good health, when he got what he describes as rheumatic pains on the right side of his body, and confined to it entirely ; but one could not make out from him whether these pains were articular or muscular. They do not seem to have been due to acute rheumatism, nor did they affect the motion of the limbs. From these he states he recovered after a few weeks, and remained in good health till three years later, or about five years ago.

He then became suddenly paralysed on the right side of the body, but is uncertain whether the face was affected or not. He thinks, however, that the right side of the face was paralysed. He remained completely paralysed for three months, and, then, gradually recovered. His neck remained stiff for a longer period than the limbs, and, though without describing any definite affection, since then he described his breathing as never having become "clear."

He enjoyed comparatively good health from that period (five years ago) until three months before admission, when he suddenly became paralysed on the right side for the second time, but voluntary motion of the limbs was not so completely suspended on this as on the former occasion.

One month after the attack motion was restored to a great degree to the limbs, but was not completely so, even at the time of his admission, for the power of his right hand, as tested by the dynamometer, was only equivalent to the left.

When recovering from this attack, and about a month before admission, he got a cough, accompanied by spitting of blood in small quantities and intense dyspnoea. These symptoms continued during the seven weeks he was in this hospital, but got gradually worse, the quantity of blood expectorated being increased, and less mixed with mucus, and the dyspnoea increased, especially at night-time.

When admitted he had a pale, dirty yellow, exsanguine appearance, and seemed much debilitated. Percussion over the lungs did not evince any particular dulness, except under the angle of the right scapula, and even here it was not very marked. Owing to the hurry and difficulty of

his respirations, it was difficult to determine whether there was any murmur connected with the heart, but one was weakly audible over the aorta.

His pulse was extremely weak and irregular, and differed in the two radials. The sphygmographic tracings (which Dr. Grimshaw exhibited to the Society) showed great irregularity of the pulse and high tension of the circulation. The vessels felt hard under the finger, especially the right radial artery.

There was increased praecordial dulness, although diminished cardiac impulse, and but little increase of first sound.

On February 18th he became extremely excitable in the evenings, often crying about imaginary evils, and very sleepless.

21st February.—Expectoration of blood much increased, and the right lung now proved to be dull through its whole extent.

On 23rd had a severe attack of epistaxis, which was with difficulty controlled.

On two occasions his urine was tested for albumen, but no trace was discovered.

The patient gradually sank, and died on March 12th, 1874.

There is nothing to add to the history as detailed above, except that on careful investigation in the hospital records there was reason to believe that the patient had been an inmate of the institution twenty years before, when he suffered from syphilis. The diagnosis was that the patient was suffering from atheromatous arteries, and that the rupture of these caused the apoplexy, the paralysis, and the epistaxis.

The *post-mortem* examination was made with Dr. Tweedy's assistance, and careful microscopic examination of the fresh specimen was made by Dr. Bookey.

The body was much emaciated. The liver weighed 4 lbs. 3 ozs., and was in a state of incipient cirrhosis.

The heart was much enlarged, the left ventricle being enormously thickened, and the muscular structure marked by whitish deposits. The cavity of the ventricle seemed but little increased in size. The walls of the ventricle were in some places one inch and a quarter in thickness. All the valves seemed competent to discharge their functions. Some whitish spots were visible on the mitral valves.

The left kidney weighed 8 ozs., and was cirrhotic through its whole structure. The coats of all the arteries leading to this, as well as the other kidney, were enormously thickened. The right kidney was still more extensively diseased; it weighed 4½ ozs., and presented scarcely any remnant of healthy structure. The lungs were extensively diseased, both being much congested posteriorly, the right especially. All the smaller arteries in the lungs had their walls much thickened, and their calibre diminished. The brain was an object of great interest, inasmuch as

they expected to find evidence of the apoplectic attacks. Accordingly, in the anterior portion of the left corpus striatum was found an apoplectic clot partially organised, and slightly projecting into the floor of the lateral ventricle. More posteriorly, and involving the anterior portion of the optic thalamus, was found a small cavity, stained internally of a brownish-red colour, evidently the result of an old effusion of blood. Dr. Grimshaw considered that the cavity was the result of the first, and the small clot the result of the second, apoplectic attacks. The small arteries and capillaries throughout the body presented the remarkable appearance described in the *Medico-Chirurgical Transactions* by Sir W. Gull and Dr. Sutton, under the title of Arterio-Capillary Fibrosis. When placed under the microscope the appearance of the various minute arteries and capillaries examined, corresponded exactly with the plates illustrating Gull's and Sutton's papers. The larger vessels seemed all healthy. The coats of the aorta retained their elasticity, and the size of this vessel and all its larger primary branches were normal. Dr. Grimshaw showed a portion of the superior mesenteric artery, which was much reduced in size, and its coats much thickened. All arteries of similar or smaller size seemed to be affected in the same way. The larger arteries escaped the disease. The small vessels over the membrane of the brain presented a remarkable whitish appearance, like little white lines. In some places this whiteness was continuous along a whole vessel for a considerable length, but in others it was patchy and irregular. The vessels of the peritoneum presented similar appearances. Dr. Grimshaw remarked that, although his diagnosis was correct, so far as disease of the arteries was concerned, yet he was wrong as to the nature of that disease. He was partly led astray by the murmur heard over the course of the aorta, which, as that vessel was found healthy, and as the patient had suffered from repeated haemorrhages, and was in an anaemic condition, must have been a blood, not an organic, murmur.—*March 14, 1874.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*Clinical Reports: Diseases of the Spinal Cord.* By C. J. NIXON, Physician to the Mater Misericordie Hospital.

I.—LOCOMOTOR ATAXY (POSTERIOR SPINAL SCLEROSIS).

II.—ANTERO-LATERAL SPINAL SCLEROSIS.

III.—SPINAL MENINGITIS, PROBABLY OF SYPHILITIC ORIGIN.

IV.—SPINAL IRRITATION AND PARAPLEGIA.

In describing the clinical features of these cases, my object is to accurately record the leading objective and subjective phenomena which formed the basis for the diagnosis, which, in each instance, is necessarily hypothetical.

CASE I.—*Locomotor Ataxy (Posterior Spinal Sclerosis).*

M. B., aged twenty-eight, an unmarried coachman, dark complexioned, and weighing 8½ stones, was admitted into hospital on the 20th February last. His health had been unimpaired up to about a twelvemonth ago ; he had never suffered from rheumatism, gout, or syphilis. There was no history of any throat affection. His habits had been intemperate ; for two or three years he drank whiskey very freely, and of late had been subject to attacks of morning vomiting. He had been a smoker, but not an immoderate one. There was a history of addiction to masturbation. His illness commenced with disorder of vision. Since June, 1873, his eyes became "clouded" in strong light, and he frequently felt a dizziness

in the head. When driving he could not tell, except at very near distances, whether vehicles were approaching him, or going in the opposite direction ; he occasionally saw objects double. His occupation exposed him to frequent wettings, and some days before last Christmas he lay down in very wet clothes and fell asleep. A few days afterwards he suffered from severe stabbing pains confined chiefly to the calves of the legs and soles of the feet, occurring paroxysmally, and of an "electric character." A sense of formication in the lower limbs and occasional startings were also experienced, and a very marked peculiarity in walking was noticed by the patient himself and his friends. He suffered, moreover, from vesical irritability ; he was obliged to empty the bladder the instant the desire to micturate was felt, and he mentioned that on two occasions he wet his bed and the floor of his room, being unable to retain his urine even for a few moments. There was no history of satyriasis, or of any failure of virile power ; he had sometimes seminal emissions at night, but they were infrequent. He sought admission to hospital as he had become "sad and desponding," and because he thought his memory was failing him. He felt nervous, too, sleeping in a room by himself, and he had always a dread of some impending trouble or access of disease.

Condition upon Admission.—The foregoing particulars were obtained from the patient himself some days after he had been taken into hospital. When first seen, he appeared stupid and drowsy ; his articulation was thick and slow, and altogether he looked not unlike one recovering from a prolonged debauch. I ascertained, however, from him, that he had taken no drink for some days prior to admission, and I have no reason to doubt his statement. His tongue was clean ; his pulse quiet, and, save for the morning vomiting, and a tendency to constipation, the visceral functions were normal. The vomiting, which consisted in the discharge of a colourless glairy fluid, ceased in a few days, and would appear to have been alcoholic in its origin. He had no tremor. The slight stupor and thickness of speech only lasted a short time. It was ascertained that he suffered from disorders of sensibility ; he had marked numbness of his legs and feet, and he compared them to "lumps of sticks." When he fell asleep he could not for a time tell where his legs were ; and if crossed over each other, it took him a considerable time to separate them. The impairment of sensibility only existed from the knees downwards. The minimum distance at which the two points of the æsthesiometer were

recognised was, on the right leg, between knee and foot, 3½ inches; on the left leg, 3 inches. Reflex movements were well marked. Sensibility to pain and temperature was unaffected; a hot jar placed near the feet could not be borne until covered with the blanket. He could not get out of bed quickly. When standing he felt "the ground hard and hot, as if resting upon a hot griddle."

In walking, there were, in part, the extravagant movements of the legs characteristic of locomotor ataxy, the heel being brought to the ground quickly and vigorously, and with a loud noise. It was the peculiar "stamper's" movement. He had not, he thought, found any difficulty in placing his foot upon a small surface. When the feet were put together, the patient standing erect, and the eyes closed, there were the usual oscillations of the body and the tendency to fall, which exist in ataxic disease. This was specially manifested when he advanced one foot suddenly and stood upon it; the tendency to fall was much greater when he rested upon the right leg. That there was no loss of motor power, I ascertained by testing the strength of the flexors and extensors by the usual mode, when the patient was lying in bed.

The condition of the upper extremities was examined with considerable care, and no evidence whatever could be found of loss of motility or sensibility. The grasp of the right hand, as measured by the dynamometer, equalled 100 lbs., that of the left 85 lbs. There were no signs of incoördination of muscular movements. The patient, with his eyes closed, could, with great facility, touch any part of his face with his finger, and no difficulty was experienced in picking up any small object with the fingers. There was no loss of perception of weight, and in every respect the condition of the upper extremities seemed normal.

Vision during the last three months became greatly impaired. He could not read the small type of a newspaper. When looking outwards on either side he saw objects double; the pupils were normal, and the irides readily responded to stimulus of light. There was no conjunctival congestion. I made a careful examination of the fundi of the eyes with the ophthalmoscope and discovered in both an advanced degree of atrophy of the optic disk.* They were of a pearly white colour, with even cut edges, whilst the retinal arteries seemed like filamentous threads. The urine was examined,

* Drs. Fitzgerald and Hayes kindly made an ophthalmoscopic examination, and confirmed the diagnosis as to the conditions found.

and found to be normal as regards freedom from albumen and tube-casts.

The treatment adopted and the result obtained may be stated briefly as follows:—To relieve the local pains warm baths and shampooing were employed. The nitrate of silver, in half grain doses, was administered thrice daily, and a teaspoonful of the syrup of the phosphates of iron, quinine, and strychnine night and morning. The pains were somewhat relieved by the baths; he could not bear the shampooing. A current from twenty cells of Leclanché's battery was passed along the spine for twenty minutes every second day, the positive pole being placed above, over the upper dorsal region, the negative over the lower lumbar vertebrae.

No very manifest improvement seemed to result, and on the 28th February the syrup of the triple phosphate was discontinued, and one ounce of phosphorized cod-liver oil, which contained the 32nd of a grain of phosphorus, was administered thrice daily. The baths and the electrical current were continued, and the latter was passed through both lower extremities over the seats of pain. The patient was allowed full diet, with milk and a moderate amount of stimulants. This treatment was continued until the patient's discharge from hospital, on March 24th. He had then lost the peculiar walk; he had no pains in the limbs. The numbness had disappeared, and he could now stand erect, resting upon one leg, with tolerable ease. He said he "felt as well as ever he did." The function of the bladder was perfect. Vision had improved; there was no diplopia. The condition of the optic disks seemed to me to be unaltered.

The occurrence of ocular troubles in locomotor ataxy is not infrequent. In the cases recorded by Topinard and Troussseau, diplopia and amaurosis are often amongst the earliest phenomena of the disease. In most cases, however, optic atrophy is slow in its progress, and rarely becomes complete until an advanced ataxic condition is acquired.

It is a point of interest to determine the cause of the lesions affecting vision in B.'s case. If the disease were situated high up in the cord it would be easy to understand how its extension would, according to the "Wallerian" law, involve the optic centres and nerves. But in this case, even allowing that from the design of their independent movements and functions, the faculty of coöordination in the upper extremities is not evinced to as great a degree as in the lower limbs, still there were present none of the usual signs which indicate that the upper portion of the cord is

affected. It would seem improbable that extension of disease to the brain could take place without some implication of that portion of the cord from which the brachial nerves arise. According to Hammond, amaurosis and disorders of accommodation do not occur in posterior spinal sclerosis existing below the cilio-spinal region of the cord, and he looks upon the sympathetic nervous influence as the mode of explaining the occurrence of those lesions. But the absence in B.'s case of any alteration in the size of the pupil, of conjunctival suffusion, or of increased temperature of the face and ear, show that the sympathetic could not have been involved. It is probable, in this instance, that sclerosis occurred in distinct localised centres or foci; that as we have multiple cerebral sclerosis, so we may have independent lesions occurring in the brain and cord at the same time.

It is worthy of note, that although there was marked anaesthesia, there still existed acute susceptibility of heat and cold. This would appear to sustain the view originally mooted by Darwin,^a that tactile sensibility and sensation of heat depend upon different sets of nerves. It also bears out the observation of Rousseau, that perception of differences in temperature is not lost until an advanced stage of the disease is reached.

The cases of diphtherial locomotor ataxy recorded by Dr. Greenhow,^b and more recently by Drs. Grainger Stewart^c and Foot,^d led me to inquire carefully as to the condition of the throat. I can only say there was not the slightest evidence of his ever having had any affection of this region.

The vomiting and the early and complete optic atrophy were no doubt suggestive of cerebellar disease. But the absence of cephalalgia, the existence of the peculiar neuralgic pains and the anaesthesia, and the vesical complication, were in favour of the disease being located in the cord. Moreover, the vomiting was attended with nausea, and it ceased when the accustomed stimulus which produced it was withheld. It is said that the amaurosis of ataxy differs from that occurring in intracranial disease. In the latter the optic atrophy presents features which show that it is "consecutive;"^e there are evidences of neuritis in the unevenness of the edges of

^a *Zoönomia*, by Erasmus Darwin, M.D., F.R.S., Vol. i., pp. 166, 167. 3rd Edition.

^b *Edin. Med. Jour.*, August, 1863.

^c *Ibid.*, May, 1870.

^d *Dub. Jour. of Med. Science*, September, 1872.

^e See a paper by Dr. Hughlings Jackson. *Lancet*, June 10th, 1865.

the disk, and in its shaded or blurred outline. In B's, the disk had the clean-cut rim and pearly white lustre of the "simple or progressive atrophy." Allbutt,* however, states that this distinction is true only in part, and that the simple, even atrophy often succeeds a chronic neuritis, whilst "the ragged atrophy of an acute neuritis may in time lose its blurred and irregular features and settle down into the even staring state which is the end of all atrophies."

I have not lost sight of the facts that the man's intemperate habits and his being addicted to smoking would give some grounds for suspecting the existence of a toxic amaurosis. Upon this point I am indebted to Dr. Fitzgerald for much information. However, the degree of indulgence in either alcohol or tobacco was not such in this instance as would warrant one in assuming that toxæmia had been induced. Besides, except the vomiting, none of the symptoms which usually attend chronic alcoholism, or excessive use of tobacco, existed. I allude to tremor, cardiac palpitation, &c. Moreover, if we take the history of cases of locomotor ataxy in which visual disorders occur, we shall find in many instances that the patients were subject to the influence of alcohol, tobacco, or lead, often to an exaggerated degree. Are we to assume that in these cases it was an induced toxic condition which caused the amaurosis? In this instance, even overlooking the disorder of accommodation which existed, there are, I think, no good grounds for believing that the optic atrophy had other causes for its production than its association with atoxic disease.

The pains seemed to have been most relieved by the baths, and possibly by the electric current. The latter was applied *loco dolenti*, not, as Dr. Althaus seems to prefer, along the course of the cervical sympathetic. He regards the pain to be due to tetanic spasms of the muscular coats of the arteries caused by irritation of the vaso-motor nerves. Upon this assumption it is difficult to understand the efficacy of electrical stimulus. The torpid action of the muscular fibres of the intestine in constipation, and their partial atony in enteralgia, are remedied by the use of a current which stimulates contraction. Does electricity act differently upon the muscular fibres of the arteries? The only explanation that might be offered is, I believe, that the passage of a strong electrical current may cause nervous exhaustion, and thus spasm gives way to relaxation. The anatomical position of the sympathetic in the

* Allbutt.—The Ophthalmoscope, p. 68.

neck renders it, I think, a matter of doubt that perfect galvanisation of the nerve can be effected.

This case is recorded as an instance of locomotor ataxy in its earliest stage, when probably the lesion in the cord is in part inflammatory, with but little alteration of structure. Hence the apparently satisfactory result of treatment. The history of recorded cases of ataxy abundantly shows that in the advanced stages therapeutical agents have but little effect in arresting the progress of the disease. But it often assumes an intermittent type as regards symptoms, whilst it is always remarkable for its chronicity. It may be that in this instance the disease is only arrested for a time, until some exciting cause induces fresh manifestations of its existence.

CASE II.—*Antero-lateral Spinal Sclerosis.*

Henry G., aged twenty-nine, an unmarried field-labourer, was admitted into hospital June 16th, 1874. He was a dull, stupid-looking man, with a flushed face and slightly-suffused conjunctivæ, and weighing about twelve stones. It was found difficult to elicit any very definite history from him, but from repeated questionings the particulars learned regarding his complaint were as follows:— He had enjoyed perfect health up to four years ago; had been always strong and vigorous, able to get through a good day's work in the fields without feeling any unusual sense of fatigue. He had occasionally been employed in a limekiln; had often worked for hours in wet grass reaching to his waist, and frequently lay down when heated upon the damp ground. He had never received any injury. His habits were temperate. He never had syphilis or sore throat. There was no history of sexual indulgence. His immediate relatives were all healthy, and none of his family had suffered from nervous disease. About four years ago he noticed his left leg becoming weak. If he walked any distance he was obliged to rest or lean upon the right leg, and shortly afterwards he found that he had to use a stick. The weakness of the limb progressed slowly, and two years ago he was attacked by severe stabbing pains in the knee and down the leg. The loss of motor power then implicated the right limb; an occasional feeling of a tight cord around the waist was experienced, whilst the pains extended across the back and down the right leg. The difficulty in rapid progression increased, and also the sense of fatigue upon the slightest exertion. If the ground was at all uneven, as where

little elevations or hillocks occurred in the fields, he frequently tripped, lost his balance, and fell. He had no recollection of any "interlocking" of his legs. Some time before admission he thought his boots were instrumental in impeding his walk, and he went about barefooted. This produced rather deep sores in the soles of the feet, which gave him a great deal of pain and discomfort. He never experienced any abnormal sensation with regard to the ground, when standing or walking; his feet or toes never felt too large for his boots; never had a feeling as if "walking upon air," or "upon a cloud." The only reason for his taking off his boots was, that he thought they helped to trip him, as they were too large for him and very clumsy in make.

Condition upon Admission.—The loss of motor power in the lower extremities had progressed to such a degree that he was unable to move or stand without assistance. When taken by the arm and led along the ward, it was observed that each leg seemed to be jerked suddenly forwards, with the knee bent; it then straightened itself, whilst the foot was carried forwards and upwards, so that the heel struck the ground much in advance of the anterior part of the foot. There was a distinct double sound made by each foot as it reached the ground. The walk possessed also the character of hesitation and precipitancy; there seemed to be a considerable difficulty in starting. This peculiar method of walking was frequently observed and remained unchanged during his stay in hospital. It was perceived that there existed none of the circuitous or extravagant movements of the limbs characteristic of locomotor ataxy, nor was the mode of progression like the hampered shuffling gait which is usually seen in the ordinary forms of paraplegia. For some time previous to admission he found that he was unable to ascend a stairs; that he could not stand with his feet placed together; and on several occasions, when he attempted to turn round quickly, he received severe falls. In walking he never looked at his legs but always straight before him. Upon examining the patient in bed a manifest loss of motor power in the left leg was ascertained. I could with an extremely small amount of force prevent him flexing or extending it. He could not, to any great extent, flex the leg upon the thigh or especially the thigh upon the pelvis. The movements of the right leg were also impaired, but in a minor degree. He thought his left leg felt slightly numb, but I could not detect, by the aethesiometer, any departure from the normal condition. There was no difference

between the two limbs in recognition of the points. However, the man was particularly stupid, and I do not think, in this instance, the examination by the æsthesiometer, as to the existence or non-existence of anaesthesia, at all conclusive. There was no loss of appreciation of temperature or pain. The reflex phenomena were markedly exaggerated. The slightest touch to the soles of the feet caused rapid contraction of the flexors. He had, occasionally, startings of the legs at night, unaccompanied by pain. He never had any sensation of "pins and needles" or of formication. There was very marked impairment of electro-contractility of the muscles; in those of the left anterior femoral region it was apparently lost. Fibrillary twitchings of the muscles were constantly noticed, especially affecting, in each limb, the tibialis anticus, the peronei, the gastrocnemius, and the extensor brevis digitorum. There was manifest wasting of both lower extremities, especially of the left one. He possessed perfect power over the bladder and rectum, and there had never been any symptoms of irritation or functional lesion of the genito-urinary system. The urine was of a pale amber colour, acid in reaction, free from albumen and sugar, and microscopically normal. There was no tendency to constipation or flatulent distension of the abdomen. There was no pain along the back, either by making firm pressure along the spinous processes of the vertebrae or by causing the patient to twist his body to one or other side. The hot sponge passed along the spine evinced no abnormal sensations.

There seemed to be no lesion of the power or function of the upper extremities. He had, it is true, a difficulty in rapidly placing his finger upon localised portions of his face, when his eyes were closed. For instance, when asked to touch the tip of his nose, he struck his malar bone. But otherwise he had no loss of tactile sense, could pick up with facility the smallest objects, and estimate correctly differences in weights. The pressure of the right hand, measured by *Robert and Collins'* dynamometer, equalled 95 lbs.; that of the left, 120 lbs.: he had always been left handed. There was no impairment of sensibility; the points of the æsthesiometer, over the middle of the arm, were recognised at a minimum distance of $2\frac{1}{2}$ inches.

There was some amblyopia, which had been progressive, but I failed, by ophthalmoscopic examination, to detect any alteration of intra-ocular structure. The pupils were normal. The tongue was clean; the lips dry and red; whilst the mouth contained some

viscid mucus, resembling the condition found in diabetes. The gastric, cardiac, and respiratory functions were normal.

The treatment, as in the last case, consisted in the use of the galvanic current passed along the spine and lower limbs, the administration of phosphorized cod-liver oil, and the following pills:—

R. Argenti nitratis,

Extracti nucis vomicæ, aa. grana sex.

Extracti gentianæ, quantum sufficit. Misce.

Divide in pilulas duodecim.—One thrice daily.

On July 4th my notes are:—He feels better, has no pains or startings at night, and is now able to walk up and down the hospital stairs. He can walk, in a very straggling manner, without a stick, but always goes to the left, or weaker, side, and has still the tendency to trip. He cannot stand with his feet close together, or turn round quickly. He attempted the latter, but fell. The peculiarity of walk still exists. There seems to be an increase of motor power in the left leg.

I do not think there was any further improvement during his stay in the hospital, and I was obliged to discharge him, owing to the partial closure of the wards, on the 16th of July. I anticipate having him again under observation in October next.

The diagnosis as to the condition of the spinal cord in this case lies between chronic myelitis and primary sclerosis. The extreme chronicity of the disease, the absence of defined anaesthesia, the integrity of the functions of the bladder and alimentary canal, and the existence of sensory and motor excitement,* as manifested by pain, spasm, fibrillary twitchings, and exaggeration of reflex phenomena, are sufficient to exclude myelitis or softening. Moreover, the peculiar mode of invasion of the disease, affecting one extremity for a considerable time before its extension to the opposite limb, is certainly not a course at all usual in inflammatory softening of the spinal marrow. In those cases of chronic myelitis, where at first a localised tract of the cord is affected, giving rise to what may seem a hemiparaparesis, we find that, in the progress of the disease, the entire substance of the cord soon becomes involved, and we have invariably uniformity of paralysis and anaesthesia in the parts below the lesion.

The existence of a tumour pressing upon the spinal cord did

* Hammond, p. 462.

occur to me in considering the nature of the case. But the absence of constant neuralgic pain in the back, and the non-existence of any signs of scrofula, syphilis, or cancer, were entirely against this conjecture. If, too, the lesion of motor function in the left limb depended upon pressure, we should have a corresponding diminution of sensibility in the right.* The history of the progress of the case negatived entirely the view of spinal tumour.

The case presented none of the characteristic features of posterior spinal sclerosis, save in the existence of the neuralgic pains in the limbs. This point shall be again referred to. The patient's walk was not that of incoördination. He had no more motor power whilst lying in bed than he had when walking, and the inability to stand depended entirely upon true motor palsy. There had never been any well-marked ocular complications,^b the impairment of muscular nutrition was decided, and at no time did there exist decided alterations of sensibility.

Looking at the case entirely from its clinical aspect, I am disposed to regard it as one of antero-lateral spinal sclerosis, and I freely confess I derived this view of its nature from Professor Hammond's description of the disease. The great and increasing sense of fatigue upon exertion, and the tendency to fall or trip, the existence of the signs of sensory and motor excitation, the peculiar gait, and the mode of invasion of the disease and its chronicity, closely resemble the semiology of the affection described by Hammond. As frequently happens in the disease, there was no implication in G.'s case of the bladder or rectum.

The pains which existed would be explained by the occurrence of more or less meningitis, which is induced in these cases, causing irritation of the sensory roots of the nerves; whilst the spasms and fibrillary twitchings of the muscles may be traced to the same cause, or to the irritation of the motor fibres in the cord by the new formation. Hyperæsthesia, when present, would, I believe, be explained by referring it to an altered condition of the circulation in the cord. In the parts attacked by sclerosis more or less pressure upon the blood-vessels ensues, causing anæmia. Sections through centres of sclerosed tissue show it to be almost bloodless, whilst the

* See lecture by B. Séguard, Lanoët, September 25, 1869.

^b The amblyopia which existed was not complained of until he was specially questioned regarding his sight. Vision was certainly not affected to any great extent, and there were no intra-ocular changes to account for any defect which may have existed.

tissue is condensed and hard. This anaemia produces a collateral, or fluxionary, hyperæmia in the non-affected parts. In antero-lateral spinal sclerosis there is consequently an increased amount of blood sent to the sensitive tract in the cord, and hence the occurrence of hyperæsthesia.

Proofs are not wanting to show that sclerosis occurs in the nervous system under varying conditions. In the cerebrum, we meet with the multiple and diffused forms. In the cord, Jaccoud, Charcot, and Vulpian have described the uniform, the disseminated, and the annular cortical forms of sclerosis. Numerous cases are recorded of this condition affecting locally and completely various nerve trunks, and in locomotor ataxy the exact limitation of the disease to the posterior columns has been repeatedly found. From these instances, even if there were no pathological proofs of the existence of sclerosis of the antero-lateral column as a distinct affection, it would be irrational to deny the possibility of its occurrence. But in Hammond's report of the condition of the cord in the case of J. H., there is absolute proof of the existence of this form of sclerosis, which had been diagnosed during life from the symptoms and signs which were present.

It must be admitted that, wherever the disease occurs, phenomena will be developed referable to the disturbance in the physiological action of the part of cord which is affected.

Whilst, in an early stage of both diseases, it may be impossible to entirely isolate sclerosis of the cord from inflammatory affections, in the advanced stages some practical points may be gained as regards prognosis and treatment in drawing distinctions between them. Sclerosis is much more chronic in its course than myelitis; it is more prone to remission of its symptoms, whilst the palsy which results from it would seem to be not so complete. Whilst in myelitis there is always congestion and inflammatory action; in the advanced stages of sclerosis, from the pressure of the neoplastic formation, there is more or less anaemia. Of course, in both cases, the indications for treatment would be dissimilar.

CASE III.—Spinal Meningitis, probably of Syphilitic Origin.

Robert G., aged thirty-five, an engine-fitter, was admitted into hospital on June 25th, 1874. He was supposed, by a medical man, who saw him, to be suffering from incipient locomotor ataxy. There was no difficulty in obtaining the notes of the case, as the man was

very intelligent, and described his condition most accurately. He was fair complexioned, lightly built, and of a nervous and fretful temperament. There was no history of hereditary or family nervous affection; he never had rheumatism or rheumatic pains. Some eight years ago he contracted syphilis. The chancre developed about a month after exposure, was indurated, and, he thought, was followed by a skin eruption. He had also some affection of the eyes. He never had any lesion of the throat. Two years ago he suffered from sores breaking out on his legs, and cicatrices, rupial in character, were left corresponding to the sites of the ulcers. His occupation necessitated severe straining efforts; he was frequently obliged to work with the body considerably bent, and he had to lift heavy weights. He was subject to variations in temperature, having to remain for a time in warm fire boxes, and then go into the open air, often in wet weather. In last December he was attacked by severe pains in the hips and down the legs, extending soon afterwards to the groins and up along the back. He next suffered from startings in the lower limbs at night; the spasms were sufficiently violent to awaken him, and were accompanied by pain commencing in the legs, and shooting up the spine. During the months of April and May the pain in the back increased greatly in severity, and a feeling of creeping and tingling in the legs was experienced. A curious lesion of motor function manifested itself. After walking a short distance he was seized with sharp pain in the groins and buttocks; the latter became small, hard, and contracted to the size of the closed fists, whilst the front of the thighs became rigid and immovable. He was obliged to rest until the prolonged spasm had subsided. It recurred frequently when walking; never when at rest. During the spasm he felt the tingling sensation in the legs in an especial degree, whilst the blood seemed to rush from the extremities to the head and face, which became heated and flushed. The sense of fatigue upon exertion, and the frequent accession of pain and spasm, rendered him unable to work, or walk any long distance.

Condition upon Admission.—The patient's gait seemed hesitating and stiff, giving one the idea of a person walking partially blind-folded. He explained this peculiarity by his efforts to prevent the coming on of spasm. He complained of great pain when caused to twist his spine, or bend it laterally. No pain was complained of on making steady pressure along the vertebræ, and no abnormal sensation was produced by application of the hot sponge. Upon

sharply percussing with the fingers the upper part of the dorsal region, tenderness was complained of; the percussion effected a tremulous, but momentary, movement of the extremities, such as sometimes occurs from a mild concussion of the spine, as in missing a step on the stairs or curb-stone. The legs were apparently somewhat wasted. Upon testing their sensibility with the aesthesiometer, I found the two points were recognised at a minimum distance —on the right leg, between knee and ankle, $1\frac{1}{2}$ inches; left leg, $1\frac{1}{2}$ inches; inner side of soles of both feet, $\frac{1}{2}$ inch. Both limbs, judging from the results following pinching and pricking of the skin, seemed to be hyperæsthetic. The reflex excitability of both was markedly increased. Touching the soles of the feet caused exaggerated muscular movements, which were perfectly uncontrollable. There was no sensation of a belt around the waist, and no priapism. He occasionally felt his feet thick and heavy. The tongue was clean, and the appetite good; bowels obstinately constipated. Pulse 76; respiratory and cardiac functions normal. Urine highly acid; sp. gr. 1.020; free from albumen. The plan of treatment adopted, bearing in mind the nature of the case and its probable etiology, was as follows:—A strip of blister was placed along the spine, reaching from the upper dorsal to the sacral region; every second day a current from ten cells of the battery was passed along the vertebral column; the bowels were kept free by aloetic cathartics, and the following mixture was administered:—

R. Hydrargyri perchloridi,	-	-	-	gr. ss.
Potassii iodidi,	-	-	-	gr. 40
Tincturæ cinchonæ,	-	-	-	3ss.
Infusi ejusdem,	-	-	-	ad. 38. Misce.

One-eighth part thrice daily after meals.

The patient was allowed up, and when in bed, was advised to lie upon either side, not upon his back.

For a time the startings at night and the pain in the legs and back, when in motion, seemed aggravated. The mixture produced some sickness of stomach, without actual vomiting, and its administration was persevered with. He had two attacks of priapism during the week following admission. They occurred during sleep, and would appear not to have been connected with imaginative influences.

The progress of the case may be briefly stated as follows:—

July 4th.—He feels better in every way. Can walk with ease

and freedom from pain. He can ROTATE and bend his spine in various positions without pain. Had no startings for past two or three nights. Reflex excitability of the legs still in excess, the left one especially so. There is still some pain in the lumbar region. The mixture of the perchloride of mercury was discontinued, and one containing 5-grain doses of the iodide of potassium, in infusion of calumba, substituted.

July 10th.—G. left hospital to-day to resume his work. He felt perfectly well, and free from pain. The only thing he complained of was that the left leg was somewhat more sensitive than the right. All evidences of meningeal inflammation had disappeared.

It would be unnecessary to dwell upon the points which appear to warrant, in this case, the diagnosis of spinal meningitis. The pain experienced upon movements of the spine, the erythema of the motor nerves which existed, evidenced by prolonged and sudden spasm, and the absence of symptoms during rest, are the principal phenomena which indicate the meningeal affection.

The case resembled, in many points, the first form of the affection which has been described by Trousseau, under the name of tetany. So much doubt and obscurity, however, exist regarding the pathology and essential nature of this disease, that the discrimination of the difference, in symptoms and signs, between it and chronic spinal meningitis, would, at least in this instance, be valueless.

The previous existence of syphilis gave grounds for assuming that the disease was probably one of the manifestations of that Protean poison; and the favourable result, ensuing from the remedies employed, "*Naturam morborum remedia ostendunt*," is in favour of this view.

The patient's occupation necessitated severe straining efforts of the spine, which possibly might determine the site of the local lesion, if admitted to be of constitutional origin. Dr. Jackson^{*} points out that syphilitic disease of the brain frequently follows blows or injuries of the head. Would not strain act in this case as an exciting cause of the meningeal inflammation?

CASE IV.—*Spinal Irritation.*

Eliza M., aged twenty-eight, an unmarried servant, was admitted into hospital June 14th, 1873. She was of a dark and sallow complexion, very loquacious, and apparently somewhat hysterical.

* Jour. Mental Science, July, 1874.

She had been in good health up to the November previous, except that since childhood she suffered from occasional nocturnal attacks of incontinence of urine. In November she remarked that she was unable to work as well as usual; she could not run about, or go up and down stairs quickly, and her mistress reproved her for her apparent want of energy in fulfilling her duties. At the end of November she fell upon her back on a stone flagging, and was senseless for a short time after the accident. Some stiffness in walking resulted, which, however, soon passed away. About ten days after the fall she suffered from severe pain in the lumbar region; the urine became of a dark colour, resembling porter; it was excreted in small quantity. Up to the time of the fall she had menstruated regularly, but, concurrently with the advent of the symptoms of renal congestion, a profuse and persistent leucorrhœa set in, and continued, without cessation, up to the time of her admission. The abnormal appearance of the urine lasted only a week. She remarked a progressive weakness of the legs, especially of the left one, and about six weeks before her admission into hospital she became paraplegic. She had difficulty and pain in voiding urine. Both lower extremities felt numb and cold; she frequently had the sensation of "pins and needles" in them.

Condition upon Admission.—There was almost complete loss of motor power in both lower extremities, and the patient had to be lifted into bed. She could draw the right leg slightly upwards, but possessed no power whatever over the left. There was marked anaesthesia of both limbs, especially of the left. The minimum distance at which the two points of the aesthesiometer could be recognised was—over inner side of left knee, $2\frac{1}{2}$ inches; right knee, $2\frac{1}{8}$ inches; over left ankle, $5\frac{3}{5}$ inches; right, $4\frac{1}{2}$ inches. The reflex phenomena were almost entirely absent. She barely *felt* the finger as it touched either foot; tickling the soles excited no muscular movements. The paralysis did not appear to affect any special sets of muscles of the limbs, but involved all equally. Lancinating pain was complained of low down in the back: she described it as an "aching of her back bone." She had occasional startings in the legs, which were unaccompanied by pain. All the movements of the spine could be executed without producing any distress; she never had any feel of a tight band around the waist, and the pressure of the hot sponge down the back gave rise to no abnormal sensation. The most extreme tenderness was discovered upon pressing over about the six lower dorsal and

upper lumbar vertebræ; the least touch caused her to jerk her body into positions, varying according to the direction and amount of force employed. The integument over the vertebræ was highly sensitive. She suffered much from dry retching; she was flatulent and dyspeptic, but there was no marked tendency to constipation. The tongue was white and flabby: pulse, 90 and weak; cardiac sounds normal. Respiration quickened upon the least exertion, as in attempting to sit up in bed; it was occasionally irregular and sighing. The urine was of normal colour, faintly acid, and somewhat cloudy from excess of mucus; sp. gr. 1·014; free from albumen. Upon microscopic examination some crystals of the triple phosphate and vesical epithelium in unusual quantity were observed in it.

The treatment adopted was as follows:—A blister was applied over the dorsal vertebræ, and an ascending current from ten cells of the battery was passed along the spine every second day, whilst the induced current was occasionally passed through the affected limbs. The following mixture and pills were prescribed, the former to allay the gastric irritability:—

R.—Bismuthi subnitratis, gr. 60.

Acidi hydrocyanici diluti, min. ix.

Liquoris morphiae hydrochloratis, 3j.

Mucilaginis tragacanthæ, 3ss.

Infusi calumbæ, ad. 3vj. Misce.

A tablespoonful thrice daily.

Zinci phosphidi, granum.

Extracti nucis vomicæ, gr. 5. Misce.

Divide in pilulas decem. One every fourth hour.

The condition of the stomach soon improved; the patient was allowed full diet, and four ounces of whiskey, in the form of milk punch, in the twenty-four hours. The mixture was substituted by the syrup of the phosphates of iron, quinine, and strychnine, a teaspoonful of which was administered night and morning. The improvement in mobility and sensibility was progressive. She experienced a glow of heat in the limbs during the use of the electric current. Somewhat severe and frequent startings of the limbs were complained of—probably an evidence of the production of the physiological effects of the strychnia; and the pills were given only twice daily. On July 6th she was able to get out of bed, but was still unable to walk, though she could stand with tolerable ease. No change was made in the treatment.

July 16th, the date of patient's discharge, she had sufficient motor power in the limbs to enable her to walk to her home; perfect sensibility had returned. The dysuria had subsided. There was hardly any leucorrhœal discharge. Little or no spinal tenderness existed, and in every way the physical condition of the patient had undergone improvement. I saw her a week after she had left hospital; she seemed then perfectly well, and was about resuming her work.

The paraplegia here would appear not to have been of the reflex or inhibitory form. It possessed no distinctly progressive relation to the urinary affection; the loss of motor power seemed to have affected uniformly the muscles of the limbs, and it co-existed with marked disorder of sensibility. I am not prepared to say that the paralysis might not have been in part hysterical. If in hysterical paraplegia we believe, with Sir Benjamin Brodie, that it is the power to will muscular contraction which is lost, and not an abeyance of the power of muscular response, in this case, then, the paralysis was not hysterical. The patient made strenuous efforts to move her legs, and she succeeded in slightly drawing upwards the right one. She attempted to walk, and fell from deficient power. But even though the *power to will* be not lost, there is still no broad line of distinction between hysterical palsy and that arising in cases of spinal irritation.

I need hardly discuss the relation of the fall to the subsequent signs and symptoms. Probably the fall was itself an indication of commencing loss of motor power, though it may have acted as an exciting cause upon a part predisposed to take on diseased action. Concussion of the spine may doubtless produce paralysis, partial or complete. Brodie gives an instance of a gentleman who was thrown from his horse, receiving a severe blow upon his back; paraplegia ensued after a lapse of five weeks, and in a year the patient was able to walk with the assistance of a stick. In instances like this, however, the paraplegia depends either upon extravasated blood which is absorbed, or, upon an irritation, which gradually subsides. In cases like M'S., trivial injuries only lead to serious results when the condition of parts affected is such as predisposes to disorder of function or structure.

If I were to adopt Hammond's nomenclature of diseases of the spinal cord I should describe this case as one of anaemia of the posterior columns. I prefer employing the term spinal irritation, originally used by Browne of Glasgow, and adopted by Ollivier.

Although imperfect, as it neither localises the lesion nor expresses its nature, still it represents a condition, or grouping of conditions, aptly described by the Griffins, Teale, Marshall, Magnus Huss, Radcliffe, and others, by which we recognise a malady as we would a case of tetanus, chorea, or epilepsy. The term spinal anaemia pledges us to a pathological condition the existence of which is merely conjectural.

In accordance with the views of most writers, it may be assumed that in all cases of spinal irritation the lesion is a central one affecting the spinal cord: upon no other assumption can we explain the complicating phenomena which arise and vary the course of the disease. What, then, is the nature of this lesion? Is it an essential or primary condition of the centre, or one produced secondarily to a deficient supply of blood? It seems certain that there is no tissue or organ in the body which may not have its functions perverted without manifest structural change or altered vascular relations. The pathology of many local drop-syphies, of diabetes, of numerous cases of tetanus, and of most neuralgias, amply bear out this statement. In cerebral paresis an instance is afforded of a primary change commencing in the nerve centre, by which its *vis nervosa* becomes exhausted.* After severe and prolonged mental occupation, or from miasmatic influences, we have often produced in otherwise healthy and plethoric individuals a torpid and lethargic condition, in which there is a complete inaptitude for physical or intellectual work—stupor, and in some cases dementia supervening. Dr. Handfield Jones^b alludes to the affection described by Pritchard under the name of leipothymia, in which there is a sudden loss of sense and consciousness, with great muscular relaxation, the patient lying in a state like sleep, whilst the condition of the circulation is different from that peculiar to syncope. In a case of this kind observed by Jones, he remarked that there were no indications of cerebral anaemia, but an extreme weakness of the nervous system generally. It would appear that the hydrocephaloid disease of Marshall Hall is also an instance of a central paresis, though probably depending upon altered *quality* of the blood. In the first stage of the disease we have the pain, hyperesthesia, and the startings, which are indicative of irritation; whilst, should the patient become worse, exhaustion of nervous power follows, and we have the stage of

* Dr. C. H. Jones—On Functional Nervous Disorders, p. 102.

^b Opus cit., p. 105.

torpor. Cases of exhaustion of the *vis nervosa* of the spinal cord from venereal excess are by no means uncommon, and are represented by what was described, in many instances, by the older writers under the name of tabes dorsalis. In Sir William Gull's^a case of paraplegia from excessive venery, in which the patient died from peritonitis and cystitis sixteen days after the advent of the paraplegia, no organic lesion of the cord was found: it was simply an instance of spinal paresis from exhaustion. Paralysis occurring after severe adynamic fevers, from miasmatic influences, and, it is said, that resulting from diphtheria, are examples also of primary spinal paresis.^b

Accepting, then, the view of the existence of a primary lesion of the cord, it seems not improbable but that it is this condition which exists in spinal irritation. It is certainly difficult to conceive that in those cases where the disease occurs in persons otherwise robust and healthy, and where there are no signs whatever of anaemia, that a localised portion of the cord should be deprived of a sufficient amount of blood to carry on its nutrition. No evidence is offered to support the view that an anaemia of the cord can be produced which will affect only the condition of some of its columns without involving all: except each of the columns had a distinct and independent circulation, it would be difficult to realise the existence of a primary and localised anaemia, which would only impair the functions of a part, without at all affecting the other portions of the centre. It is placed beyond doubt, by the experiments of Rayer and Brown-Séquard, that an irritation reflected from the kidney produces visible contraction of the vessels of the spinal cord, and this fact is utilised in explaining the mode of production of reflex paraplegia. But even here, where peripheral cause of vasal spasm exists, it may be doubted that the anaemia which results does not affect in some degree the functions of the entire of the cord. At least, if in those cases sensation, as a rule, is apparently unaffected, whilst the motor paralysis is never complete, the intactness of sensibility is due more to the absence of a profound anaemia than to its localisation. The results of the experiments of Kussmaul and Tenner would appear to show that completeness of paralysis depends upon the extent of interference with the vascular supply. If it be difficult to understand that in

^a Guy's Hospital Reports, 1858.

^b For able arguments in support of *primary functional paralysis*, see Lumleian Lectures, Med. Times and Gazette, July and August, 1865.

spinal irritation anaemia is confined to the posterior columns, it is equally doubtful that a poor or altered quality of the blood should exercise its influence locally and partially upon those parts.

In assuming, then, *par voie d'exclusion*, that primary spinal paresis is the pathological condition in spinal irritation, and that the degree of exhaustion of the *vis nervosa* of the cord will develop proportionate symptoms of altered sensibility and motility, and of visceral lesions, it would follow that, as a result of the paresis, the normal vascular condition of the cord would undergo disturbance. As in all tissues, the nutrition of the nervous system varies with its functional activity ; its means of repair bear a definite relation to the activity of its molecular change. This is specially instanced in the growth and development of the nervous system in childhood. The excess of activity of the ganglionic cells of the medulla oblongata in epilepsy, according to Schroeder Van der Kolk, engenders an increased supply of arterial blood for the restoration of their activity ; and he remarks, "that the vascularity of the ganglionic groups, and the quantity of arterial blood supplied to them, are directly related to the intensity of their action."

It follows, then, that in spinal paresis and exhaustion, from the *inactivity* of the nerve vesicles, there is inactive nutrition ; the circulation becomes sluggish, and venous engorgement ensues. The condition produced is that which is thus expressed by Pritchard :—"There is a state of increased vascular distension, in which an unusual quantity of blood is accumulated in a part without any increase, or even with a diminution, of the ordinary degree of sensibility. This state is commonly termed that of simple congestion, or of venous congestion, from a supposition that it consists in an accumulation of blood in the veins." Upon this view, the veins of the meningo-rachidian plexus become distended, and it is not improbable that the pressure of these veins upon the spinal nerves as they pass from the cord may produce hyperæsthesia and neuralgic pain. Intercostal neuralgia is produced from a similar condition^b.

The visceral complications which arise in spinal irritation are due, doubtless, to a disturbance of the relations existing between the cerebro-spinal and vaso-motor or visceral systems. It is not

^a Van der Kolk on the Spinal Cord, and on the Medulla Oblongata, and on Epilepsy. New Syden. Soc., p. 217.

^b Niemeyer, p. 301.

difficult to show the influence of the nervous system upon "the formative processes constituting nutrition." The results which follow section, or inflammation of the Gasserian ganglion, the pathology of herpes zoster, the retinal changes which occur in many forms of intra-cranial disease, the effects which have been shown to follow injury to nerves or their division, prove the influence exercised by the nervous system upon the tissues. Dr. Moxon^a relates the particulars of the *post-mortem* examination of a woman who died of paraplegia, in whom a zone of miliary vesicles was found extending round the cavity of the peritoneum lining the false pelvis and hypogastrium. A tubercular mass, the size of a marble, was found disorganising the portion of the cord from which the nerves supplying this part were derived. Many cases of pleurisy owe, I believe, their origin to disturbed nervous influence. During the last month a man was admitted under my care complaining of a stitch in his left side, below the nipple. A friction sound, localised to the extent of a crown-piece, was heard. He was feverish, and had the tongue and rice-water sputum of pleurisy. Little or no extension of the disease occurred, a subcrepitant rale was developed corresponding to the seat of the pleuritis, showing the superficial implication of the lung, and in about five days, when all the signs of inflammation were subsiding, a well-marked herpes zoster developed itself over the seat of pleural irritation, extending backwards along the intercostal spaces, and forwards on the abdomen. This was evidently no accidental complication; the disturbance of the nervous supply of the pleura, due to implication of the intercostal nerves, extended also to the skin by means of their lateral cutaneous branches.^b Some cases also of transient pericarditis^c owe their production to a similar pathological cause; and I believe most practitioners can call to mind instances of both these affections, where, from their ephemeral duration, it would be difficult to explain their occurrence upon any other assumption. The very intimate dependence of the vaso-motor system upon the cerebro-spinal is shown in the local hyperæmia and bed sores which occur in the advanced stages of myelitis, and destructive injuries of the nerve-centres; in the effects following hemi-sections of the cord; in the local congestions resulting from insolation and certain

^a Lancet, 1871, p. 819.

^b Hilton on "Rest and Pain," p. 247.

^c See Cases of Transient Pericarditis. Dr. Christian Baumler. Clinical Society Trans., Vol. V.

forms of paralysis due to miasm. In spinal irritation, then, from the impaired activity of the function of the spinal centre, more or less vaso-motor paresis ensues; hence the vertigo and head-ache, the gastralgia and vomiting, the cardiac palpitation, &c., which arise in the affection, according to the part of the cord which is affected. In B.'s case the renal affection and the vaginal flux can be traced, most probably, to the same cause.

ART. V.—*Description of a Needle Guard, for use in Operations for Hare-lip and other Plastic Operations on the Lips and Face.*
By HENRY J. TYRRELL, F.R.C.S.I., Surgeon to the Mater Misericordiae Hospital, &c.

IN operations for hare-lip and in other plastic operations on the lips and cheeks, how to deal with needle points has been to me for a long time a source of difficulty.

Formerly I was in the habit of breaking them off, but I was not pleased with this mode of procedure, for the following reasons:—
1. If the needles are tolerably strong (which they should be) the force necessary to break them causes a shock quite sufficient to disarrange the neatly and accurately adjusted edges of the wound.
2. At the place where the needles are broken, or cut, a rough edge is left, which renders their withdrawal more difficult and painful than if they had not been broken or cut. 3. When withdrawing a needle, it is much more easy to do so (and consequently, the edges of the wound are less likely to be torn asunder) if it is sufficiently long to be grasped, and rotated between the finger and thumb before traction is used.

For these reasons for some years I have been content to stick pieces of cork on the needle points, and although it looks a clumsy proceeding, I much preferred it to the more usual practice.

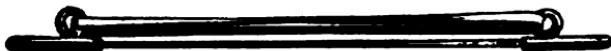
I have lately devised a simple contrivance, which I think of service in such cases. I call it a needle guard. As the wood-cuts show, it consists of two little plated tubes, each three-quarters of an inch long, and open at one end. The tubes are tied together with a piece of string elastic, or better still, with a vulcanised india-rubber ring, sufficiently extensible to allow the guard to be easily slipped over the two ends of the needle.

The guard does not interfere with the twisted suture or skin

and can be at once removed, without the slightest difficulty or dragging, when the needle is about being withdrawn.



The Guard before application.



The Guard applied.

If the surgeon is "of a frugal mind," and wishes to use the same needles again and again, he can do so by simply running them, after use, to and fro for a moment through an emery bag. The friction restores their polish and sharpness.

The guard was made for me by Messrs. Read, Parliament-street.

ART. VI.—*Cases of Elephantiasis Scroti ; Removal.* By SURGEON C. LLOYD, M.D., M.Ch.. Q. U. I., &c., H. M. Indian Army.

MUNENDLEN AGI MOPLAH (Mussulman), aged twenty-seven years, was admitted into the Calicut Civil Hospital, Malabar, August 12th, 1873, with a scrotal tumour of enormous dimensions, reaching to within three inches of the ground as the man stood erect, fifteen years in growth.

Patient's Statement.—The tumour commenced in the scrotum, noticeable at first by a slight thickening of its coats, afterwards increasing to an enormous size, and involving the penis. This increase of size of late years has been attended with periodical attacks of slight fever, variable in its duration, usually appearing every month, and attendant on an appreciable increase of bulk of the affected part. Within the last two or three months there have been no febrile attacks. Is able to walk about with difficulty, owing to the extreme weight which he has to carry, which, however, he keeps supported to a considerable extent by the arrangement

of his dress. Has performed three pilgrimages to Mecca, to the shrine of the Prophet, the last being only a few years since. Elephantiasis of both legs co-exists, but in one to a very slight degree. Patient's general health is good. Heart perfectly healthy.

Description of Tumour.—The shape of the tumour is somewhat oval, pedunculated at its upper end, where it grows from the pubis, extending down (in the erect posture) to a level with the ankles, and concealing laterally much of the lower extremities. Surface is quite smooth. About the centre is an opening which leads up to the penis.

Dimensions of Tumour.—Around the neck, at narrowest part, $14\frac{1}{2}$ inches; transverse measurement, 44 inches; vertical measurement, 54 inches.

August 21st.—I removed the growth, with the assistance of Dr Pout, H. M. 43rd L. I., several dressers giving good aid. Having kept the tumour elevated by means of ropes to allow some of the venous blood to drain away, the patient was put under chloroform; a soft, twisted rope (about the thickness of a window sash line), provided with handles, having previously been passed around the neck of the tumour, and running through a steel ring, acting as a tourniquet, was then tightened by assistants, effectually controlling the hæmorrhage. The tumour was then lowered to a level with the man's body, and the operation proceeded with.

Having inserted a director into the sinus leading to the urethra, a long, deep, vertical incision was made down to the penis with an amputating knife, and the organ, which lay several inches deep from the surface, was then exposed; the knife was then introduced into the sinus on the director, and the hypertrophied prepuce slit up, disclosing the glans penis. Having removed the greatly thickened prepuce, the deeply lying penis was rapidly dissected out, and reflected on to the abdomen. A long deep incision was then made over the left testis, along the direction of the cord, and the gland, with a quantity of fluid, was found contained in the thickened tunica vaginalis, which was detached from the testis, and that organ dissected out, and held up on the abdomen. The right testis was reached by a similar parallel incision, and with the cord dissected out and reflected, a transverse incision then connected the two, and a few sweeps of the knife separated the growth. Ligatures were then applied to every bleeding point, between thirty and forty having to be used. No subsequent hæmorrhage

took place; the penis and testes were covered with a weak solution of carbolic oil on lint; this formed the only application. The testes, which reached with their elongated cords nearly to the knees, were supported on a pillow, and with the penis completely excluded from the air by the dressings.

The weight of the tumour was found to be nearly 65 lbs., including a quantity of fluid resembling serum drawn off.

About seven weeks after the operation the patient was able to get up and walk about. The testes are now quite retracted to their normal length, and covered over with a sort of skin.

CASE II.—SHAIK HYATH, Mussulman, aged twenty-six years, admitted on the 13th September, 1873, into the Calicut Civil Hospital, with elephantiasis scroti of ten years' duration. For two years past patient has not been able to stand, owing to the weight and dragging of the tumour, which has commenced to ulcerate at its base, exuding a slight watery discharge. At the patient's request I determined to operate, though he was not in the best of health, and had a slight cough. Still life was a burden to him on account of this huge growth, which would only tend to weaken him if allowed to remain. Accordingly, as in the other case, with Dr. Pout's assistance, the tumour was successfully removed on the 18th September. About thirty ligatures were applied. The steps of this operation were similar to the preceding, but one (the right) testicle having been found to be diseased, was removed, and the vessels of the cord tied.

The weight of this tumour proved to be 61 lbs.

The case from the first did exceedingly well, complete recovery and retraction of the remaining testicle rapidly taking place.

Remarks.—This form of growth is occasionally seen in the United Kingdom, the largest tumour successfully removed in that country having been done by Mr. Liston, in Edinburgh. In this case, however, the testes and penis were removed. The weight of the tumour was 44 lbs.

An interesting case of one weighing nearly 30 lbs. is published, from the pen of Dr. Wiblin, in the *Transactions of the Medico-Chirurgical Society* for 1863; the man, however, died soon after the operation.

Dr. Fayerer, 1st Surgeon, Calcutta Hospital, in his work on "Clinical Surgery in India," quotes a number of cases in which he has operated, with very good results in most instances.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Contribution à la Physiologie. De l'Inflammation et de la Circulation.

Par le PROFESSEUR M. SCHIFF. Traduction de l'Italien par le DOCTEUR R. GUICHARD de CHOISITY. Paris: J. B. Baillièvre et Fils. 1873. Pp. 96.

THIS book contains an account of several investigations which have been recently made by Prof. Schiff, on subjects connected with vascular physiology and pathology.

The first division consists of an abstract of four *Lectures on Inflammation*. The author commences by proposing the question—Is inflammation primarily and essentially an alteration of nutrition or of circulation? He decides in favour of the lesion of nutrition; but, since in inflammation, constant alterations in the circulation and blood-pressure are observed, he considers it necessary to study these carefully, and to show that they alone are not sufficient to account for the phenomena, before he gives an answer to the main question—What is the nature of the entire inflammatory process?

The constant phenomena are these:—When an irritant is applied to a vascular part, the vessels at the point of irritation contract, and this contraction advances in a wave-like manner along the vessels till it reaches the capillaries, which, having no muscular coat, are unable to undergo active alterations of diameter. To this contraction succeeds a dilatation. The blood-flow during the period of contraction is accelerated, and retarded during that of dilatation; the blood corpuscles move sluggishly, often become stagnant, or oscillate, and fill the whole vessel up to its walls. If the irritation has not been very intense, the normal circulation becomes re-established after a short time. Schiff explains these phenomena, not by any increased attraction between the blood and tissues, not by the pressure on the vessels of abnormal exudation, but by a primary contraction of the coats, due, partly to an irritation of the vaso-motor nerves, partly to a direct irritation of the muscular walls themselves. Just as a contraction produced by

irritation of a point of the intestine or ureter advances peristaltically along its tube, so a contraction of an artery, starting from any point in its course, will advance towards the capillaries as far as the muscular coat exists. "A contraction which, starting in an intermediate vessel, arrives at a capillary, produces (by intercepting at this point the blood current) all the modifications which have been described, viz.:—First, a temporary acceleration at the constricted point, with retardation above this point; then accumulation of corpuscles, both red and white; distension of the vessel by augmentation of pressure; oscillations of the blood-column synchronous with the cardiac movements; and, finally, stoppage of the circulation. Then follows relaxation of the contraction; the circulation re-commences; the vessel often dilates beyond its normal dimensions, and the current of blood is more rapid. This is sufficient to account for all the facts already mentioned which have to do with the early stages of a traumatic inflammation, but it is not sufficient to explain all the facts relative to inflammation in general, as we shall shortly see" (p. 7).

It will be observed that, according to this theory, the dilatation of one part of a vessel depends on the contraction of another part more peripherally placed, the dilatation being produced by the *vis à tergo* of the heart. But there are several facts which prove that dilatation is not always thus passively produced. For instance, Weber has observed dilatation in the frog's foot, to which irritants had been applied, after ligature of the limb, and even after amputation, when, of course, there was no circulation at all through its vessels. Further, some irritants, such as acids, collodion, ether, &c., produce dilatation first, and contraction subsequently. Hence a mechanical theory, which allows, as the only cause of dilatation, a peripheral obstruction, is untenable; and it must be admitted that in most cases the constriction and the dilatation are independent phenomena, and must be explained independently one of the other.

In traumatic inflammations, during the vascular dilatation and acceleration of the circulation, the most constant phenomenon is an increased blood-pressure in all the vessels. This is due, in those vessels which are still contracted at the periphery, to the *vis à tergo* of the heart, in neighbouring vessels to collateral fluxion and to diminished friction of the blood against the walls of the dilated vessels. A greater permeability of the coats of the finer vessels may also be inferred, from the increased diffusion of their contents,

and from the passage through their walls of the white, and even of the red corpuscles. The question now arises—Are these vascular phenomena sufficient to explain the inflammatory process, which has been already shown to consist in an alteration of nutrition? The answer to this question turns very much on that given to another—namely, Is normal nutrition entirely under the influence of normal circulation, or do the tissues themselves exert at each point a local influence?

Now, the blood is the same everywhere, and, as the tissues vary in each part of the body, it would appear that something more than the circulation is necessary for the maintenance of the nutrition of each part. But, in answer to this, the Humoralists urge that the shape of the capillary net-work and the blood-pressure are different in each part, and that these differences in circulation are sufficient to account for the differences in nutrition, without supposing that any active share is taken in this process by the tissues themselves. Professor Schiff, however, brings forward numerous examples which prove that, under very abnormal conditions of blood-pressure, and even in the absence of all circulation, normal nutrition can be maintained; and that, although the circulatory conditions may be perfect, the nutrition may be abnormal; and hence concludes that, although the circulation furnishes the *material* for nutrition, the *form* which this nutrition assumes is determined by other and local conditions.

The following is the concluding paragraph of these lectures (p. 23):—

“The fundamental fact, which, at present, is of most importance for us is, that the periphery of each organ exercises on nutrition an influence which is peculiar to it, and which determines the final direction of the nutritive process. But it must not be forgotten that it exercises this influence in its quality of organic unity, that is to say, of an aggregate of component unities, which differ among themselves, and which, taken separately, may want this power. It is true that a power manifested by an aggregate must be the resultant of the power of the component parts, but the form in which it manifests itself, the effects which it produces, may be very different from the form and the effects of the powers of the elements. We have, then, no right to say, in the case of a tissue composed of cells, that any of its properties are already expressed in the cells, but only that they are represented in them. Nutrition is a function so complex that we cannot attribute it, as such, to the individual constituent elements of the tissues. The Professor hesitates

for that reason to pronounce in favour of the cellular theory (which at present wants direct proof), although the general result of his investigations leads him to agree with this theory in so far as it attributes the nutritive activity to a force inherent in each living organ."

The next memoir is entitled, *The Cellular Pathology and Inflammation; their relations.*

Admitting the difficulty or impossibility of giving a perfectly satisfactory definition of inflammation, Schiff proposes the following:—"An alteration of nutrition produced by an irritant;" an irritant being "any agent which, applied to an irritable or excitable part, causes an augmentation of the physiological function of the latter."

The author then, after demonstrating that the circulation is only one element in nutrition, proceeds to show that the vascular phenomena, observed in parts experimentally irritated, have only a limited value in explanation of what occurs in inflammations as studied in the human subject; for in these we never observe the contraction of the vessels seen in the frog's foot under the microscope, but always vascular dilatation.

When an irritant is experimentally applied directly to a vascular tissue, there is, besides the general irritation of the tissue, a local irritation of the vessels, which, together with the irritation of the motor and sensitive nerves, may give rise to the varied contractions and dilatations of the vessels which have been noticed in experiments, but which are not seen in clinical inflammations. In non-vascular parts, such as the cornea, cartilage, &c., the author does not admit the possibility of true inflammation, unless the action of the irritant extends to the surrounding vessels. An irritation limited to the part causes merely "a perturbation of nutrition." In vascular tissues, besides this perturbation, there is a dilatation of the vessels which represents an increase of functional activity in them, and which gives rise to a swelling of the tissues, caused by effusion of albuminous or fibrinous fluid, or by suppuration—phenomena which are wanting in non-vascular parts.

With regard to the great question as to the origin of pus, the remarks of Professor Schiff are full of interest. He believes that all the pus cells are derived from the blood, and, to account for the enormously rapid production of these bodies, he assumes a proliferation of the endothelial cells of the vessels of the inflamed part, a catarrh of the internal coat, giving rise to a true suppuration in the blood before the pus appears in the extravascular parts. That

mobile corpuscles are produced by proliferation of the cells of the irritated tissues, whether vascular or non-vascular, is admitted by the author, but he denies to these the properties of true pus, although he does not say on what grounds. We should like to have had more details on this matter, which is by far the most interesting part of the paper.

By observations with the manometer, Prof. Schiff has proved the existence of increased blood-pressure in the vessels of the inflamed parts, and to this he attributes the effusion of albuminous fluid which gives rise to the swelling.

He concludes, from a consideration of the whole subject, that no perfect definition of inflammation is possible, as the phenomena must vary greatly in different parts, according to the tissues found in each, and whose functions are exalted. Thus, in non-vascular parts, there is a nutritive irritation (parenchymatous inflammation of Virchow), and, if nerves be present, pain. In vascular parts, in addition, redness, from dilatation of the vessels; swelling, from increased albuminous exudation; endo-suppuration, giving rise to increased permeability of the vascular walls, emigration of cells, and the appearance of pus in the tissues.

Following the chapters on inflammation, we have an abstract of some lectures on *Venous Tension as a cause of Oedema*.

The question considered in these is—"Does an obstacle to the venous circulation alone suffice to cause oedema of the parts below the obstruction?" As is well known, there are many experiments and observations which seem to give an affirmative answer to this query, but recently Ranvier has made some researches which go to prove that venous obstruction alone will not suffice for the production of oedema, but that to this obstruction must be added paralysis of the vaso-motor nerves. The following investigations of Schiff appear to reconcile this discrepancy.

The tension in the principal vein of a part is very seldom $\frac{1}{2}$ that in the corresponding artery. There is, of course, a considerable increase of venous tension when the vein is tied, but this increased tension is rarely more than $\frac{1}{4}$ that in the artery. This smallness of rise is due to the freedom of the collateral circulation, which seems to be much greater than has hitherto been supposed. If, however, all, or most of, the veins of a part are simultaneously tied, then the pressure in the principal vein rises to a much greater height, and, even although the nerves be untouched, oedema always occurs.

The law formulated by Schiff is as follows:—Whenever the venous tension rises to $\frac{6}{10}$ that in the arteries, œdema occurs.

After section of vaso-motor nerves, a less complete ligature of veins will suffice to raise the venous pressure to the requisite height, for the dilated arteries now offer less resistance to the blood, which finds its way more rapidly into the obstructed veins. So, while ligature of a principal vein alone does not cause œdema, this operation, combined with section of the nerves, will be followed by effusion.

These researches explain, also, the well-known fact, that the nearer the centre the vein is obstructed the more likely is œdema to occur, because the freedom of collateral circulation diminishes as we approach the centre.

The remainder of the volume is occupied by considerations on the influence of the nervous system on the circulation.

In the first memoir, entitled, *Some Experiments on the Transfusion of Blood*, the object of the author is to explain the apparent enfeeblement of the heart, which shows itself after destruction of the medulla spinalis, or after its separation from the medulla oblongata. This enfeeblement manifests itself—1, by a lowering of the blood-pressure; 2, by a diminution in the frequency of the pulse. It was at first supposed to depend on a direct lowering of the energy of the heart; but, subsequently, it was shown to depend chiefly, if not altogether, on paralysis of the small blood-vessels. Schiff extends this idea, and finds that not only the small vessels, but also the larger trunks, are paralysed and dilated in consequence of the injury to the spine (p. 51):—

“Starting from this fact, we might conclude, as Goltz has already pointed out, that, after paralysis of all the vascular nerves, the principal cause of the apparent feebleness of the heart and of the diminution of the blood-pressure, does not lie altogether in the facility with which the arterial blood traverses the small dilated vessels leading to the venous system, but that the large vessels, themselves dilated, augment also in capacity, and can retain in their channels, now become more roomy, a large quantity of blood, which cannot return to the heart, and which is consequently withdrawn from the circulation.

“An animal whose vessels are paralysed and dilated is an animal relatively anaemic, who wants blood, because a great part of that which he has is held in the peripheral vessels.

“If this mode of reasoning is just, if in an animal whose medulla is cut the blood-pressure and the frequency of the pulse diminish until the

cardiac movements cease, because the animal has become relatively exsanguine; and if the section of the medulla does not act on the heart in any other way, we should be able, in such conditions, to restore to the heart its apparent force by augmenting the quantity of blood in proportion to the dilatation of the paralysed vessels, so that the heart should receive always the same quantity of blood, which, in the normal state, comes to it from the periphery of the body."

Such an experiment was made. The augmentation of the quantity of blood was effected by transfusion. It was found that it was necessary to transfuse very large quantities of blood in order to raise the vascular pressure to its normal height, and when it was so raised, a further dilatation of the vessels soon occurred, so as to cause another fall of pressure, and to necessitate a further transfusion. Whenever the blood-pressure was raised to the normal height, the force of the heart was found unimpaired, and quite sufficient to maintain the due difference between the arterial and the venous tensions. Hence, the author concludes (p. 57):—

"That, after the section of the cervical medulla, the apparent feebleness of the heart, which manifests itself in the pulse and in the blood-pressure, is only an effect of the relative want of blood in the vascular system, and has nothing to do with the destruction of supposed nerves, whose function it is to maintain the force of the heart. The heart acts as before the section, once the blood-pressure is restored to its former height."

Control experiments were made to show that the injection of the blood of another individual, or the presence of an unusual quantity of blood in the vessels (so long as the tension was not above the normal), did not act as a cardiac irritant.

The last two articles in this volume give an account of *New Experiments on the Hastening Nerves of the Heart*. Since the time of John Reid it has been known that after section of the vagi in the neck, the pulse does not beat with uniform rapidity, but that under the influence of emotion, movement, &c., it undergoes changes of rhythm. Increased intra-cardiac pressure, produced by vascular contraction, causes an acceleration of the pulse. It might, then, be supposed that after section of the vagi, the effects of excitement, &c., are exerted primarily on the vessels, and only secondarily on the heart, through the increased intra-vascular pressure. Professor Schiff has made a most valuable discovery, which sets aside this

explanation. He finds that when an animal is poisoned by subcutaneous injection of atropia or of nicotin, the heart becomes insensible to variations in the blood-pressure, which may be augmented to double or treble, or reduced to one-half its former amount, without causing any alteration in the rate of the pulse. In an animal thus poisoned, and whose vagi are cut, the rapidity of the pulse ought to be invariable, if the only hastening fibres run in the pneumogastrics.* But such invariability of the pulse is not observed under these circumstances, hence hastening fibres must run in some channel other than the cervical cords of the vagi.

Our space will not allow us to detail the experiments which were made in order to discover this channel of hastening impulses. We can give only the result. The fibres in question arise with the spinal accessory; within the cranium they join the vagus, but leave this again above the lower border of the second ganglion or ganglion of the trunk. They then run in the superior laryngeal nerves, through the anastomosis between these and the inferior laryngeal, and along the latter to the thorax, where they leave the recurrent nerves to join the cardiac plexus. Hence these fibres belong to the system of the vagus, and except these and the other nerves belonging to the same system, there are, according to Schiff, no cardiac hastening nerves.

The experiments by which this curious discovery has been made are of the most masterly character. We strongly recommend the memoir to our readers, as giving a good specimen of the way in which modern physiological research is being carried on.

Clinical and Pathological Observations in India. By J. FAYRER, C.S.I., M.D., F.R.S.E., &c. London: J. and A. Churchill, 1873. 8vo.

THIS book will be read with interest by all surgeons, but particularly by those who desire to compare the conduct of disease under the influence of a hot climate with home experience. Dr. Fayrer affords, in his extended pathological researches, as well as in the accurate clinical histories of his cases, the fullest opportunities for this comparison, while the range of his subjects omits but few branches of practical surgery. Whatever inferences may be

* As most of our readers know, Schiff maintains that irritation of the vagi, not carried beyond a certain point, causes hastening of the heart-beat.

deduced from this comparison with reference to disease, the reader of Dr. Fayerer's book cannot withhold his praise of the author's zeal and power of doing work under the disadvantages of a hot climate; nor can he doubt of the accuracy of the record, for we find throughout the book an honesty in the statements of details, even when unfavourable to the author, which gives abundant evidence of his truthfulness.

But few surgeons care to give details of unsuccessful cases as Dr. Fayerer does. We take, as an illustration, his report of tracheotomy, more particularly as it contains an important practical lesson—namely, the risk of trusting to a single tube in this operation.

He records eleven operations for various causes, with but three recoveries. He says:—

"Most of these cases were of the severest character, for which the operation could hardly hold out more than a faint hope of relief; but such cases are as instructive as those that have resulted favourably, and, therefore, I have recorded them in detail."

Referring to the point noticed above, we find the following candid remarks as to the cause of death in Case No. I, a girl aged three years:—

"In this case the obstruction to the respiration was due to the entry of a custard apple seed into the larynx, and it was not until all other means of relieving the patient had failed that the trachea was opened. This was followed by great relief, which, there is reason to believe, might have been permanent, had the tube not become obstructed by the inspissated mucus that had collected in the distal end of the tube, which unfortunately was a single one. This case shows the necessity of having a double tube, with the view of keeping the outer one free from any deposit. It appears to be impossible to keep a single tube free without frequently removing it from the wound, and this in a timid and irritable child would be, for obvious reasons, most objectionable. It is very important after tracheotomy that the condition of the tube should be closely attended to, and frequent examinations should be made, by removing the inner one, to see that no deposit is taking place."

This child was admitted and operated on in the morning, and died at 10 p.m.

The next case, also a child of three years of age, was operated on at night, at 10.30 p.m., suffering from laryngismus, supervening on

an attack of tonsillitis, and died at 7.30 the following morning. The author describes the cause of the fatal issue as follows:—

“ Unfortunately, no double tube small enough could be found at the time, and a single one had to be used, and from its not being thoroughly cleansed out during the night, the accumulation of viscid mucus closed the lower end, and thus gradually arrested the supply of air. What the result might have been had the tube been kept clear, it is impossible to say; but the case shows the great necessity of using a double tube, the inner one exceeding the outer in length, so that no collection of inspissated mucus can take place. In this case the mucus dried and hardened, not only in the end of the single tube, but also around and beyond its extremity, so that, even supposing the bent probe, with its end wrapped in lint, had passed down the entire length of the tube, it could not have kept it clear. This is a point of great practical importance in reference to the operation, and should be borne in mind, especially in the case of children where the opening is small. It is obvious that if there be a double tube, the inner one of which protrudes considerably, no collection, such as occurred in either of these cases, could take place if the inner tube were frequently removed and cleansed. The occlusion of the tube in this case could not be regarded as the result of neglect or carelessness, but rather of accident, for it was frequently cleaned out. Unfortunately, not having been removed from the wound, its end became the seat of the deposit which gradually obstructed the entrance of air.”

This last case not only adds force to the conclusion that a double tube is necessary, but it also proves that, in the event of its not being attainable, if symptoms of obstruction occur, that the tube should be removed and cleaned, no matter what the difficulties of the proceeding may be.

The advocates of the use of carbolic acid as a surgical dressing will find in Dr. Fayerer's list of cases and in his observations abundant and very telling evidence in favour of its use. He says:—

“ We have observed that some compound fractures have recovered under the use of carbolic acid, which, we believe, would have otherwise terminated in amputation or death; and we have satisfied ourselves also that wounds, accidental or surgical, have suppurated less, and healed more rapidly than usual; that abscesses, sloughing, and unhealthy sores, have more readily assumed and maintained (when aided, of course, by proper constitutional treatment) a healthy reparative action; and that the sanitary condition of the hospital generally has been benefited.”

It appears that a desideratum in Indian surgery is good iron wire for sutures, for Dr. Fayerer very justly condemns "the resilient, unannealed, oxidisable iron wire generally supplied." No doubt such presents all the disadvantages a metallic suture can possess, but with the knowledge that plenty of wire free from these objections can be obtained at home, we cannot but express surprise that it cannot be had in India. Gold or silver, &c., Dr. Fayerer very properly condemns, as too costly, and he adopts, as preferable to any, horse-hair.

"Well selected white hair out of a horse's tail is, in many respects, better than any suture hitherto devised. . . . That from the tail of a white or grey horse is the best. I hardly know why it should be so, but I find the white is better than the black hair. . . . The matter may appear a trifle, but it is, nevertheless, an important trifle, for if one can avoid the alleged inconvenience, and even danger, from suppuration, from the hemp and silk ligature, or the disadvantages of the wire, the subject is sufficiently interesting to be worthy of consideration."

We copy the above remarks, because we agree with the author, that the subject is worthy of consideration.

Our opinion is much in favour of the use of the hair suture, as preferable to wire, in operations that do not either require much strain, or in which the surgeon is obliged, as in vesico-vaginal and similar operations, to avail himself of the power of closing the suture with a twister, or to thread the Liston's needle after it has been passed through the lips of the wound. In these cases no substance affords the same facilities as wire. Our only objection to horse-hair in suitable cases is its liability to break, and we shall certainly test the hair of the white horse, for we confess to our ignorance of its special properties.

In his valuable chapters on pyæmia, osteo-myelitis, and fibrinous coagula in the heart, we think we see a bias which spoils the value of Dr. Fayerer's researches. We say spoils, for it does not destroy their value. Dr. Fayerer seems throughout the investigations which form their basis to have been prejudiced in favour of intra-cardial coagula as a cause of death. We are willing to admit the possibility, and even the frequency, of this mode of death, but we protest against the constantly recurring error of setting down all intra-cardial coagula—which are "firm, decolorized, and adherent," obstructing the auricular, ventricular, and arterial openings, and extending "far into the subdivisions of the pulmonary arteries.

ramifying like the branches of a tree," or such as have "taken the cast of the three pouches behind the sigmoid valves"—as *ante-mortem* coagula, at least in the sense in which the term *ante-mortem* is used commonly, and by our author, that is, as the cause of death. The writer of this review can readily produce—as any one who is familiar with practical anatomical and pathological study can—hundreds of such coagula, if necessary, in a twelvemonth, and can prove that not one of them was formed until the death of its owner had so far progressed that the heart had ceased to send forward any stream, and that the laws of gravity had acted during the formation of each such clot. We will but qualify the foregoing statement in one way. With reference to the word "adherent" in the passage quoted, we take it to mean incapable of being lifted out of the ventricle, or auricle, as the case may be; not adherent in the strict sense—that is, adherent to the endo-cardium, a character much to be relied on, as determining coagula which do cause death, as distinguished from those of our author, and of many others with him, who appear to us to be addicted to finding an anatomical cause of death in all *post-mortem* examinations, as if such were possible. While we take exception to this point in Dr. Fayrer's book, we clearly see that his observations, if biassed, have not been biassed intentionally, or even knowingly, and we know that many of our readers will decline to accept our view of the case. Many will do so, no doubt, from the liking they have for the same death-causing coagula.

Elements of Chemistry. By WILLIAM MILLER, M.D.; late Professor of Chemistry, King's College, London. Revised by HERBERT M'LEOD, F.C.S.; Professor of Experimental Physics, Indian Civil Engineering College. Part II.—Inorganic Chemistry. Fifth Edition, with additions. London: Longmans, Green, Reader, and Dyer. 1874.

WHEN a book, especially on a scientific subject, reaches a fifth edition, there is *prima facie* evidence that it is a good one. Miller's Chemistry is so well known to, and so highly appreciated by, the teachers and cultivators of chemistry, that an edition of it lasts but a very short time—it is bought up rapidly. It is but a short time since the fourth edition of Part II. (Inorganic Chemistry) of Dr. Miller's work was published, and yet a few months ago it was

difficult to procure a copy of the work. The edition just issued is, however, by no means a mere reprint; it is, on the contrary, in many respects an entirely new work. The order in which the elements are discussed is quite different from the arrangement followed in the previous editions. Hydrogen, instead of oxygen, is the first of the simple bodies which is treated of. This element is electro-positive and monatomic; next follows the monatomic and electro-negative radical chlorine. The simplicity of many of the compounds of these two elements is, no doubt, sufficient justification for the editor's departure from the long-established practice of first discussing oxygen, which, being bivalent, forms more complex combinations. The dyad oxygen being disposed of, the properties of boron, a triad, are considered. Next we have the tetrad carbon, followed by the pentatomic element nitrogen; and the series of examples of atomicals, so to speak, concludes with the hexad sulphur. We fully approve of Mr. M'Leod's arrangement of the elements, for it will serve to facilitate the study of quantivalency by students. A good many examples of constitutional formulæ are given in brackets, which will be appreciated by the more advanced students. We need hardly add that the information given in this work is brought down to nearly the end of 1873. The present edition reflects credit on its painstaking and careful editor, and we have no doubt will prove as successful an issue as any of its predecessors.

A Manual of Medical Jurisprudence. By ALFRED SWAINE TAYLOR, M.D., F.R.S., Lecturer on Medical Jurisprudence in Guy's Hospital. Ninth Edition. London: J. & A. Churchill, New Burlington-street. 1874.

WE welcome a new edition of a book which is well and favourably known to every medical man who speaks the English tongue, and whose author's works are familiar to the physicians of all civilised countries. Few books of a technical character have attained to so great a degree of popularity—well deserved too—as that which now lies before us. We have, however, very evident reasons for this large measure of appreciation; the book is cheap, copious, accurate, and complete. The immense variety of subjects treated of in its 772 pages of small type renders it invaluable, not merely to the toxicologist or to the "medical expert," but to every

practitioner in every branch of the curative art. At the present time medical men are called upon very frequently to give evidence in police, coroners', and the superior courts, in reference to a great variety of cases. Legal questions relating to insanity, legitimacy, criminal abortion, wounds, and deaths from poison, drowning, starvation, &c., have to be constantly answered by medical witnesses, and under such circumstances we almost invariably find the examining or cross-examining advocate armed with a copy of Taylor's Medical Jurisprudence. Often have we seen an ill-informed medical witness confounded by being told by a cross-examining counsel that he had expressed an opinion altogether at variance with Dr. Taylor's views on the subject—page so-and-so of his work on medical jurisprudence. We repeat, therefore, that this book is one which should enter into the composition of even the most slender of medical libraries, and it is one which the student of medicine should, undoubtedly, possess himself of at an early period of his studies.

The present edition of Dr. Taylor's Medical Jurisprudence is enriched by new chapters on spectral analysis in relation to the detection of blood stains on weapons and clothing, on personal identity, and on cicatrices from tatoo marks. The new process of dialysis is described, and several new poisons are mentioned, as well as new methods for the detection and identification of poisonous agents. In almost every respect the book is an improvement on its predecessor, and there is really nothing of consequence to find fault with in it. Writing in the *Dublin Journal of Medical Science*, we might venture to direct the attention of the author to a fatal case of poisoning by chlorine gas, recorded in the number of this Journal for February, 1870. No mention of poisoning by this gas is made in Dr. Taylor's work, though he instances cases of poisoning by other gases—muriatic acid, ammonia, sulphuretted hydrogen, &c.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

DR. LYONS, President.

DR. BENNETT, Secretary.

Fibroid Transformation of the Muscular Tissue of the Heart.—DR. HAYDEN said he had the honour of exhibiting a form of disease of the heart which was exceedingly rare—namely, fibroid transformation of the walls and of the papillary muscles. By a happy coincidence he had the opportunity of exhibiting three specimens of this form of disease, and what was further to be remarked, these specimens represented progressively three successive stages of the disease. One case was under his own care, and was perfectly observed. Another was under the care of his colleague, Dr. Nixon, who kindly gave him an opportunity of examining the patient during life, and the third was obtained from a subject in the dissecting room, and there was, consequently, no history connected with it. The first case was that of a woman aged thirty-nine, who had reared a large family. She was admitted on the 7th of January last under his care. She had been a year previously under his care for bronchitis supervening on pulmonary emphysema. At that time there were no symptoms or signs referable to the heart, with the single exception of evidence of engorgement of the right chambers, so common in these cases. After three weeks she went down to the country comparatively well, but he learned that during the interval between that time and her return to hospital she had had repeated attacks of bronchitis, attended with extreme dyspnoea. When admitted in January last she was extremely livid, particularly the features; the lower extremities were oedematous; there was no pulse at the wrist; the urine, which was passed in small quantities, was of a high specific gravity, and contained albumen in small quantity. The heart pulsated as usual behind the ensiform cartilage; there was audible here a very distinct murmur associated with the first sound. A murmur was likewise audible about an inch and a-half to the left of the middle line. For three days

subsequently the murmur, which was first of a soft and blowing quality, assumed a musical character, and then the preceding character was resumed. For two days, at a later period, it ceased to be audible altogether, and then was again heard, and continued until her death, on the 13th of February. During the whole of this period she was literally moribund, had scarcely any pulse, scarcely got any sleep, and was obliged to sit up the whole time struggling for breath. The diagnosis was attended with some difficulty. It lay between mitral regurgitation and tricuspid regurgitation. The latter was exceedingly rare; at least, in the sense of being satisfactorily identified. The displacement of the heart to the right side by the emphysematous left lung rendered diagnosis based on the point of greatest intensity of the murmur unavailable here; nevertheless he came to the conclusion, with diffidence however, that it was a tricuspid murmur, and that the musical character of the note, which was heard for three days, was, probably, due to the entanglement of a flake of fibrin in the valve. There were eight ounces of serum found in the pericardium. The left lung was exceedingly emphysematous. The heart was somewhat enlarged; it was fatty on the surface, and presented the milk spot so usual in such cases. In the recent state the right ventricle was permanently dilated, and the papillary muscles, especially at the attachment to the walls of the heart, were rigid. A microscopic examination of the inner stratum of the muscular fibres showed considerable hypertrophy of the connective tissue.

The tricuspid orifice was greatly dilated, and in the recent state was permanently so, as was the case with the ventricle. The left ventricle presented nothing worthy of special notice, with the single exception, that the mitral valve was opaque, but quite pliant, and at the same time capable of closing the orifice. This might be supposed to furnish an explanation of the murmur. Oppolzer held that a valve of this kind might give rise to a murmur, owing to the modified vibration which it yielded; but he (Dr. Hayden) could not accept that as an adequate explanation. This specimen, then, presented the first stage of the disease known as fibroid transformation. The second heart had already been laid before the Society by his colleague, Dr. Nixon, and he would not, therefore, dwell on the particulars of the case. It illustrated the second stage of the disease. The subject was a woman aged sixty-five, who had been suffering from capillary bronchitis and emphysema. There was great respiratory distress, and general venous engorgement. A murmur of regurgitation existed both at the mitral and the tricuspid orifices. The inner portion of the walls of both ventricles and both sets of papillary muscles were found to have undergone fibrous transformation, and in the left ventricle one of the latter was greatly attenuated, and bi-ventral. Inadequacy of the valves was due to the changes which the ventricular walls and the papillary muscles had undergone.

The third specimen was a still better example of the disease, but he was unable to give any details, as it was taken from the body of a man brought in for dissection, who, judging from his appearance, was about fifty years of age. The mitral orifice was greatly contracted; the left papillary muscles and tendinous chords were eminently rigid. The muscular structure of the wall of the left ventricle was in an advanced stage of fibroid conversion. The outer stratum seemed to be scarcely affected, but it was distinctly perceptible on the inner surface. On section large and distinct islets of white and firm fibrous structure, extending continuously outwards from the parietal attachment of the papillary muscles, were seen dispersed through the walls of the heart. Under the microscope the structure exhibited the usual histological features of white fibrous tissue, with the addition of large oval corpuscles, Dr. Ormerod has called attention to a still more advanced form of this disease, where the heart presented the appearance and the condition of a leather bottle, was permanently dilated, and so rigid that when struck it would sound like a piece of wood. The doctrine generally received as to this form of disease was that it was the result of inflammation commencing in the sub-epicardial or sub-endocardial tissue, travelling into the heart, causing hypertrophy in the first instance, and then thinning and rigidity of the walls, and leading, when localised, to aneurism of the heart. The first specimen he had exhibited could not be explained in that way, for there was no evidence of antecedent inflammation. He thought, therefore, it afforded an example of what Sir William Jenner described as partial fibroid transformation of the heart from persistent congestive irritation of its walls.

The existence of a murmur, identified during life in the two first-mentioned cases was interesting. It was due to the inability of the right ventricle to contract, owing to the rigidity of the muscular walls and papillary muscles.—*March 14, 1874.*

Gastritis; Bronchitis and Catarrhal Pneumonia, and subsequent Tuberculosis.—DR. NIXON exhibited the thoracic and abdominal viscera of a man, aged twenty-two, who had been admitted under his care on the 24th of January last. He complained of pain in his right side below the breast, and on stethoscopic examination a pleuritic friction sound was audible. He had no cough; there were no physical signs of any lung disease. The breathing under both clavicles was free, but weak. After some days the pain ceased, and the friction sound disappeared; there was no evidence of effusion, and the man seemed tolerably well. He was, however, by no means strong, or in perfect health. He had been a travelling jeweller by trade, and led a very dissipated life. Before admission he drank very hard, principally of bad whiskey. He had the history of some previous affection of the chest, and had been told by his

physician that he was threatened by phthisis. For a time no decided symptoms of disease were complained of. He merely felt sick, and had complete anorexia. The pulse was quiet, the skin cool, and the tongue clean. In a short time his stomach became extremely irritable; he could retain nothing upon it. Pressure over the epigastrum caused pain and a feeling of nausea. The tongue became coated with a white creamy fur. A feverish condition now set in; the pulse rose to 120; the temperature 102° F. Every kind of food was rejected by the stomach, and it was with difficulty a little iced champagne, and some milk and lime water were retained. Even placing the patient sitting up in bed caused attacks of vomiting. He continued in this condition for about ten days, when he complained, for the first time, of cough without expectoration, and sonorous rales were heard over both back and front of the chest. He got general bronchitis, affecting the large and small tubes—a condition very similar to that arising in the course of enteric fever. The cough shortly afterwards became very urgent, and it was accompanied with muco-purulent expectoration and very short breathing. To be brief, the fever continued till his death; the pulse became rapid and weak; the respirations increased in rapidity, and he suffered from intense dyspnœa, occurring sometimes paroxysmally, and attended with transient delirium; whilst at this time the physical signs present were slight infra-clavicular dulness on both sides in front, and coarse crepitant accompanying inspiration. The temperature was never more than 102° F., being 100° F. on the evening of his death. The back of the lungs was not examined, as the patient could not, from short breathing, bear the slightest movement. He lay perfectly prostrate upon his back in bed, gasping for breath, intensely anaemic, and bathed in his own sweat. Dr. Nixon never saw a case in which there was so much sweating. It rolled in streams from his forehead and face, moistening everything around him. He retained perfect possession of his senses until his death, which occurred on the previous evening.

The *post-mortem* appearances were as follows:—Both pleuræ thickened from old disease, and adherent to lungs; right lung consolidated in both upper and lower lobes, and presenting, on section, the appearances found in catarrhal pneumonia, with extensive caseous depositions in the bronchi; portions of the lung sank in water; some tubercles were also found in it; the left lung was studded with miliary tubercles from apex to base; the mucous membrane of the stomach was reddened and injected; there were some capillary extravasations found beneath the mucous membrane; the liver, spleen, and kidneys were normal; there was no change found in the mucous membrane of the intestinal tract.

Dr. Nixon said it was a matter of considerable interest to determine what connexion the gastric attack had, as cause or effect, with the condition of the lungs. The state of the pleuræ was

evidently the result of old inflammatory action, but whether co-existing or not with any latent pulmonary disease, it is difficult to say. The man had no cough, nor any symptoms of pulmonary distress, immediately prior to admission, and if there had been any lung disease, it gave no evidence of its existence by development of physical signs. The man's habits of life were such as would generate an essential gastric catarrh. He was an irregular and indiscriminate eater: he drank very hard and very constantly. Moreover, it may be allowed that, in an epidemic of typhoid fever, the epidemic influence may have something to say to the causation of a gastritis. The symptoms which presented themselves at first were entirely referable to the condition of the stomach. They constituted a typical example of what is known as the "saburral condition" of gastric catarrh—the "*embarras gastrique*" of French writers. There were then no signs or symptoms referable to the lungs. It was only when the fever which accompanied the gastritis had existed for a time, and when the patient became exhausted from deficient nutrition, that the symptoms of bronchial catarrh manifested themselves.

If the existence of a primary gastric affection be admitted, it would not be difficult, especially with such local and constitutional conditions as existed here, to understand the development of a catarrhal pneumonia ending in caseous deposition and subsequent tuberculosis. The patient was puny and cachectic looking; he had but feeble power in resisting the influences of noxious agencies or local lesions. The fever which existed consumed all his strength, whilst, at the same time, the condition of the stomach was such as to preclude the introduction of sufficient nutriment to maintain him, even if he were in a condition of health. It has been remarked that lunatics who refuse their food frequently die of tuberculosis, and that the ill-nourished are more prone to lower forms of diseased action than the plethoric. No conditions, then, could be more effective in producing that form of inflammation, which we know is attended by profuse cell formation and caseous degeneration. The sympathy which exists between the stomach and the lungs in their anatomical structure and nervous supply explains the occurrence of bronchitis, which was the starting point of the pneumonia, ending in caseous deposition and subsequent tuberculosis. Such a result is frequently observed as a sequence to enteric fever.—*March 14, 1874.*

Bronchitis; Fibroid Disease of Heart.—Dr. NIXON exhibited a morbid specimen, taken from the body of a woman aged sixty-five, admitted to the Mater Misericordiae Hospital, suffering from bronchitis. She got sufficiently well to be able to sit at the fire in the ward. In a few days, however, she caught cold, and the symptoms and signs of capillary bronchitis set in. Both extremities became oedematous; there was a large amount of ascites, and a cardiac apex murmur developed

itself. The murmur was heard in its greatest intensity at the junction of the fifth rib with the sternum; and it was doubtful whether it was developed at the mitral or the tricuspid orifice. All the symptoms became aggravated. She suffered from orthopnoea, and gradually sank. The lungs were found congested at their bases. The liver was slightly enlarged, and of a nutmeg character. The kidneys were good examples of the cirrhotic form of Bright's disease; the cortical substance was diminished in size and contained some cysts; the glandular substance was dense, and there was a large increase of fibrous tissue in the organ. The capsule was more adherent than usual, and somewhat thickened. On opening the chamber of the right ventricle it was found to be enlarged. The cavity of the left ventricle seemed normal, but its walls were attenuated. The interior of the right auricle presented a peculiar appearance; it had lost its smooth shiny character, and presented a number of hair-like processes, quite rough, as if caused by a recent deposition of lymph. The tricuspid orifice was enlarged, admitting with ease the tips of the four fingers. At the time the apex murmur was noticed there was marked double pulsation of the jugular veins. The mitral orifice was normal in size; the edges of the mitral valve were thickened, but it was apparently competent. A microscopic examination showed that the base of the left ventricle was in an advanced stage of fatty degeneration, and the fibres of the right ventricle were nearly in the same condition. The musculus papillaris attached to the left segment of the tricuspid valve presented an altered appearance. It was bi-ventral, the two bellies being apparently separated by a tendon. On making a section through the constricted portion of the column and examining its structure under the microscope he found it composed entirely of perfectly-formed fibrous tissue. He examined the other parts of the right ventricle with great care, to ascertain if there were any more depositions of fibrous tissue, but could find none. The endocardium seemed thickened and opaque. In the left ventricle the column attached to the posterior segment of the mitral valve presented, at the junetion of the muscle with the chordæ tendineæ, a fibrous nodule. He should have said that in connexion with the constricted column in the right ventricle there was calcareous degeneration of part of it. The aorta was in an advanced stage of atheromatous disease, and he observed that the morbid change of structure was most marked at the part of the arch where it bends to the left side. This atheromatous change also extended up the arteries leading from the arch. It was remarkable that with such an extent of disease in the aorta, there was no aneurismal dilatation of the vessel. This, however, might be explained by the consideration that as the heart underwent degenerative change, the vigour of its contraction was impaired; hence one of the main conditions which assist in the production of aneurism was wanting. Fibroid degeneration

of the muscle of the heart is not of uncommon occurrence, as shown by the records of the Pathological Society of London. But its site is generally in the walls of the ventricles; much more rarely in the papillary muscles. In many cases it is the result of endo-carditis; but in others it would seem to result from that constitutional diathesis, if such be admitted, which leads to similar fibroid changes in the lungs, kidneys, spleen, and liver.—*March 14, 1874.*

Comminuted Fracture of the Sixth Cervical Vertebra—Contusion and Subsequent Disorganisation of the Spinal Cord.—Dr. A. W. FOOT, in the absence of his colleague, Mr. White, laid before the Society specimens illustrative of the lesions above mentioned. The case was that of a hardy country man, aged fifty, who died on the seventh day after the receipt of these severe injuries. The man was leading a horse and float in through an avenue gate, the wheel of the float caught in the gate-post, the horse reared, the man was knocked down, and got under the float, which was low in the floor, being for the conveyance of stall-fed cattle to the Dublin market. As the horse reared, the man was more than once pounded by the bottom of the float, as he lay under it. When medical assistance was procured he was in a state of extreme collapse, which continued for four hours; internal and external stimulation was freely employed. The medical man who saw him soon after the occurrence observed an almost entire absence of the right radial pulse, as compared with the left. It was also ascertained that he was paraplegic, but he retained some power in the upper extremities. He was conveyed to the Meath Hospital the next day, where, on arrival, it was found that he was paralysed completely in the lower limbs, and in the upper also, with the exception of being able to hitch up the shoulders; he was insensible to the prick of a pin from an inch above the nipples downwards; his head was quite clear; he did not speak of pain as a prominent symptom; his back bore no marks of violence. The protection afforded by a stout frieze coat may have saved the skin from contusion. Reflex action in the legs was deficient; the respiration was diaphragmatic—it occurred in sobbing jerks, which shook the body; he was distressed from inability to cough. His temperature (axilla) on admission, 22 hours after the accident, was 96.80° Fahr.; in the popliteal space of same side, 95.9° Fahr. Pulse was 76; respiration, 36. On the next day (15th March) sensation had improved; the limit of numbness was now midway between the nipple and umbilicus. On the 16th it was at the umbilicus, but there was a strong tendency to an erroneous reference of the point of contact. The temperature, which had been rising since the third day, was this morning at 103.3° Fahr., and there was a marked inclination to arching of the back. When admitted there had been a considerable amount of trismus, and both pupils were much contracted. His usual

position in bed was on his back or right side; he could not lie on his left side; he felt as if about to smother when put in that position, and should at once be changed. On the sixth day he gave himself up, and on this and the following day there was a progressive fall in temperature, and, what was more remarkable, in the pulse also, which came down to 40 before he died.

Upon *post-mortem* examination there was no injury to the contents of the chest or abdomen discovered, nor any effusion into these cavities. The spinal column was evidently injured in the cervical region; there was no rupture of the deeper strata of the anterior common ligament, and ecchymosis beneath the *prævertebral* fascia about the lower part of the cervical region, with *præternatural* mobility of the column adjacent to the ecchymosed parts. The left lamina of the sixth cervical vertebra was broken into three portions, the larger of which was depressed in the direction of the spinal canal; the right inter-transverse articulation between the sixth and the seventh cervical vertebrae was torn open, with rupture of its capsular ligament; the body of the sixth was separated from that of the seventh vertebra. Posterior to the injured bones there was ecchymosis among the loose adipo-areolar tissue surrounding the theca vertebralis, which had apparently proceeded from rupture of some rachidian sinuses. The dura mater of the cord opposite to the fractured parts was vascular, the other membranes were uninjured, and through their transparent structure the cord immediately below the brachial enlargement had a swollen, bruised, discoloured appearance. On longitudinal section, as soon as the confining influence of the pia mater had been removed, the softened substance of the cord swelled out, as it were, diffuent, pinkish-red; the softening and capillary haemorrhage extended upwards and downwards beyond the region of the injured vertebrae for a space in all of four inches. The sides of the section through the softened parts had not consistence enough to maintain their angles, but flattened themselves out into a horizontal pulp, so that it was a matter of speculation whether the cord could be hung vertically in spirits. This position was, however, effectively attained by some preliminary management in hardening. The pinkish-red and bruised appearance of the softened parts contrasted strongly with the firm, white condition of the more distant parts of the cord. The arachnoid covering the dorsolumbar portion of the cord exhibited a purely pathological condition, independent altogether of the cause of death, in a number of opaque, white, cartilaginous deposits in its substance. Dr. Foot considered that the cord had been, in the first instance, bruised by the depressed portion of the arch of the sixth vertebra, and that subsequent myelitis and red softening, extending upwards and downwards, had caused death.

The following table shows the condition of his circulation, &c., while in hospital:—

1874.	Temp.			Pulse.			Resp.		
	m.	n.		m.	n.	e.	m.	n.	e.
March 14,	-	96.8°	96.1°	76	—	64	36	—	42
„ 15,	-	99°	100.9°	68	—	76	22	—	24
„ 16,	-	103.3°	101.8°	86	—	82	26	40	34
„ 17,	-	101.6°	99.3°	92	—	82	31	—	30
18,	-	98.6°	96.4°	72	60	54	36	38	26
„ 19,	-	96°	96.5°	60	—	44	30	—	—

The m. temperature of 14th March was the temperature at the time of his admission on the afternoon of that day. The temperature of the popliteal region was carefully taken, twice daily, and was very constantly about 1° F. below that of the axilla. The urine, which was all along withdrawn by a catheter, became alkaline on the fourth day.—
March 21, 1874.

Enteric Fever.—DR. LYONS exhibited a specimen of a fatal case of enteric fever. It was worthy of observation to what an extent that form of fever had replaced the disease, typhus fever, with which the members of that Society had all been so familiar. The records of the Society for the present winter showed that an unusual number of cases had already been presented before it. The case he now brought under their notice illustrated another point remarkably characteristic of the enteric fever of the present day—viz., the tendency, as Dr. Foot had already observed, to very protracted duration. Dr. Lyons said that he had now under his observation in the Hardwicke Hospital a case of enteric fever, which, he was happy to say, was nearly convalescent, but which on that day had reached its 135th day, having passed through all the enteric, thoracic, cerebral, and other complications incidental to that most protean form of fever. As an illustration of the protraction of the fever and death at a very late period, he might allude to the specimen in the jar on the table. It was taken from a patient who died on the forty-ninth day of enteric fever, and the specimen which he now laid before the Society, showing an extraordinary amount of deposit in the glands and patches of Peyer, was also an instance of death after a very protracted period. There was considerable difficulty in ascertaining with precision the duration of the disease, for the unfortunate man was kept at home for a period variously estimated from thirty to forty days while suffering under fever. The inception of enteric fever was often marked by obscure symptoms, and it was extremely difficult therefore to determine the exact commencement of the disease in many cases. So far as could be ascertained, this patient was lying between thirty and forty days at home before he was brought into hospital, and when he came in was in a low and prostrate condition, suffering considerably from diarrhoea, which, it was stated, had been a marked feature of the case during the period he lay at home. But, as

often happened in these cases where there were large and copious evacuations going on for a considerable time, it was not very difficult to check the diarrhoea; and, after a few doses of the ordinary chalk-powder, the diarrhoea gave no further trouble, and for the last few days there was none whatever.. He suffered from another complication, which hastened the fatal issue of the case, namely, an extensive condition of diphtheritic exudation in the fauces, the hard palate, and the tongue. He lay for the last three or four days in a tranquil condition, and the day before his death he actually expressed himself as feeling better. He was tolerably conscious, was not suffering, and stated himself to be rather better than usual. He died that night at twelve o'clock, and seemed to sink in a silent manner, without any new accession of remarkable symptoms. A *post-mortem* examination was made with great care by Mr. Lamprey, who was then acting as Dr. Lyons' clinical clerk. There were symptoms of extreme intumescence and deposit in Peyer's patches and in the solitary glands, realising what the French called *dothien-enterite*, or pimple-like intestine. It was further to be remarked that this patient's intestines appeared literally to have abounded in patches of Peyer. These were rarely found so large, and to such an extent so high up in the intestines, as they were found here—reaching into the jejunum these patches of Peyer were found. In a long experience both at home and abroad, Dr. Lyons stated, he had hardly ever seen an instance of this disease progressing to such an extreme extent. All through the intestines, several feet in length, these patches were found. As they were all aware, the patches of Peyer were more ordinarily confined to the lower 20 inches of the small intestine. However, cases were found where they were seen as high as the duodenum, but although they were not found so high in the present case, they could be traced to a high position in the jejunum, and the solitary glands could be traced still higher in that portion of the intestine. In this case several conditions at different stages of the morbid process were presented concurrently. In the lower portion of the intestine the deposit seemed to have undergone but little process of removal. The glands were unbroken, and in the recent condition they were found to the extent of one quarter of an inch above the level of the mucous membrane, whereas in another part the process of elimination by ulceration had advanced to a considerable extent. For instance, they could see one patch with its circumvallated mass of deposit, the centre eaten away to the extent of $\frac{1}{8}$ th of an inch in depth, and the slough of the typhoid matter almost detached. Passing down they found a great patch on the ileac aspect of the ileo-caecal valve, which had thrown off a large amount of typhoid matter. If they passed into the large intestines they found evidence of the existence of a similar, if not of a precisely identical, disease in the solitary glands. At the greatest prominence of the cæcum

an ulcerated patch about the size of a shilling was observed. A large amount of deposit was thrown out above the surface, and a considerable amount of burrowing had taken place. This might be considered an example of a rare occurrence, which was occasionally recorded in connexion with the large intestine. It was stated that patches of Peyer were seen in the large intestine. He (Dr. Lyons) had not seen any true patch of Peyer in that situation, but an aggregate of glands was occasionally found. This patch to which he now called their attention looked as nearly a pseudo-patch of Peyer as anything he had ever seen. In the lower part of the large intestine there was a condition approaching to dysenteric disease. Six or seven inches of the intestine were covered with a diphtheritic exudation, and enlarged solitary glands were scattered over the surface.

Looking at the present case it was evident, Dr. Lyons thought, that it was a case where, in the progress of the fever, the typhoid matter was thrown off continuously for a long period. They could not otherwise explain the fact that while ulceration had progressed to a remarkable extent in one portion of the intestine, in another the ulcerative action had not been advanced at all. He had already observed on the richness of the Pathological records of the Society that session in illustration of this disease. Enteric fever was essentially the fever of Dublin at present. It was the fever chiefly found in the Dublin hospitals at present, and with which they were most familiar in private practice, and it had to a large extent replaced typhus fever, which in former times was more prevalent. That was a point of great interest and importance. It was also worthy of observation that coincident with, or following on the introduction of a good water supply, now enjoyed for some years, enteric fever should be so prevalent in Dublin.—March 21, 1874.

Retro-pharyngeal and Retro-œsophageal Gangrenous Abscess.—DR. T. E. LITTLE said that, on the evening of the eighth day before death, the man, from whose body the present specimen was removed, applied at the out-patient department of Sir Patrick Dun's Hospital, complaining that he had a fish-bone stuck in his throat. He returned next day, and on investigation of the case the following condition of affairs was made out:—He still made complaints of a foreign body “in some part of his swallow,” and he localised his impression of its position at the left side of, and about half an inch below (and behind) the cricoid cartilage; he had considerable difficulty in swallowing; the effort at this act being accompanied by some trouble in preventing the food from regurgitating through the nares; the region of the œsophagus in the neck was tender on pressure or manipulation; there was some swelling of the neck laterally; nothing abnormal was to be seen on examining the fauces, nor could the finger detect anything abnormal as far as it could reach. A soft

œsophageal bougie was passed, for the purpose of exploration, and met with no obstruction, nor did it convey to the hand the impression of any unevenness of, or of any foreign body in, the canal examined, and its passage gave little or no pain ; the voice was quite unaffected. The following day the man was admitted to hospital, with an aggravation of all his symptoms ; and, in addition, certain new phenomena had become developed :—An extensive superficial ecchymosis of the right side of the neck and upper part of the chest existed ; the back of the pharynx was red and swollen, but quite soft to the touch. A laryngoscopic examination showed a small ecchymotic spot upon the epiglottis, and a trifling amount of swelling of the parts about the opening of the glottis. At this time the patient had lost the sensation of a foreign body in his swallow. During the future progress of the case these symptoms all persisted, and a low form of asthenic fever supervened. During the last two days of life the most troublesome symptom was a severe irritative cough, of which neither a laryngoscopic examination of the throat, nor a stethoscopic examination of the chest, gave any account. Just before death a foetid smell from the man's breath and person was observed. He died apparently of simple asthenia. *Post-mortem* examination.—The most careful investigation failed to discover any fish-bone, or other foreign substance, in or about the pharynx or œsophagus. The mucous membrane of these organs was quite intact, and not inflamed in the slightest degree. In the submucous tissue of the upper part of the pharynx, and in the folds around the opening of the glottis, there was some blood effusion—very slight, however. A large gangrenous abscess, of considerable extent, was discovered situated behind the lower half of the pharynx, and the upper half of the œsophagus, extending into the posterior mediastinum, and towards the apices of both pleural cavities, where the lungs had become adherent by recent lymph. A small portion of the posterior part of the upper lobe of the right lung was in a condition of diffuse gangrene ; this, however, though in contact with it, had no direct communication with the cavity or contents of the gangrenous abscess mentioned, which was bounded by a thin, but defined, limiting wall, and had not opened at any place. Dr. Little referred to a case bearing some similarity to the present one, recorded in the Proceedings of the Society by the late Professor Smith, where, though the history of a bone in the throat was given, *post-mortem* examination equally failed in the discovery of the foreign body. The present President (Dr. Lyons), however, had most carefully reported a case having much resemblance to both this and Dr. Smith's case, in which a large piece of bone was, after death, found firmly impacted across the œsophagus.—*March 21, 1874.*

Accessory Pulmonary Lobe of the Vena Azygos.—DR. E. W. COLLINS said the specimen which he brought before the Society presented features of

unusual interest, as it was the first instance of a rare abnormality which had been met with in this city and exhibited to the Society. It had been taken from the body of a man apparently about fifty years of age, in the dissecting room of the School of Physic, having been discovered during the examination of the thoracic viscera. The absence of any history of the case was, in this instance, of no importance, as the interest of the specimen centered in an abnormality, which was evidently congenital, and had not interfered with the functions of the structures affected during life.

A three-fold abnormal condition was present, which involved the right lung, pleura, and vena azygos. Immediately above the root, between it and the lung, sprang an accessory lobe, pyriform in shape, with a broad peduncular attachment. It and other portions of the lung bore traces of previous vesicular emphysema. Removed from its position, it measured four inches in length, by two and a half in breadth at its widest part. The breadth of the peduncle was an inch and a half. The lobe lay beside and upon the bodies of the five upper dorsal vertebrae in an accessory pleural pouch, which communicated with the general pleural cavity only around the peduncle of the lobe. The pouch was formed by an arched duplicature which depended from the outer part of the pleural cone. Attached externally along a line corresponding to the junction of the ribs with the vertebral bodies, as far as the head of the fifth rib, from this line of reflection the pleural fold arched forwards and inwards over the accessory lobe to the mesial line of the dorsal vertebrae from the fifth upwards to the first. Here it was again reflected outwards and backwards, investing the side of the spine, so as to become continuous with the inner layer of the pleural fold. Above, as along its outer border, the duplicature was continuous with the costal portion of the pleura—along its inner border with the mediastinal. Its lower border alone was free. Its measurements were—along its outer border three inches; along its inner, three and a-half; along its lower, one and three-quarters. The lower free margin contained the vena azygos and a thickening, consisting of fat enveloping minute vessels for the supply of the vein and its pleural investment. The azygos, as it was traced upwards, inclined outwards and backwards from the sixth dorsal vertebrae to the head of the fifth rib. There receiving the superior intercostal vein, which ran in the *outer* limit of the pleural fold, instead of arching over the bronchus, behind the pleura, it entered the *lower* margin of the fold. Describing in it a curve forwards and slightly upwards, then directly inwards, over the peduncle of the accessory lobe, it reached the extra pericardial portion of the superior cava on a level with the fourth dorsal vertebra. The arched pleural fold, containing the azygos vein, thus covered in the accessory lobe and isolated it, save at its peduncle, from the remainder of the lung. Further inwards than the upper lobe,

there lay upon it the venous trunks of the cava, right innominate, and subclavian, the lower part of the trachea, with the right bronchus, and vagus nerve, and the right side of the oesophagus; arching over its apex, the subclavian artery (the recurrent nerve winding round it) with its branches, the internal mammary and superior intercostal, which arose immediately above the vertebral, the first dorsal nerve, and the dome-like fascia from the scaleni muscles. The trachea was thus separated from the spinal column, for some distance, by the pleural pouch.

Dr. Collins observed that, while there were extant records of seven similar cases in different parts of Europe, in all of which the accessory lobe of the lung, pleural fold, and vena azygos bore the same relationship to each other upon the right side, a solitary instance alluded to by Wrisberg was to be found of this condition upon the left side. The constant, though rare, correlation of the three structures was not accidental. It was intimately concerned with the mode of origin of the accessory lobe and pleural pouch. Professor Cleland has shown that a study of the early development of the venous system, more especially of the rudimentary azygos or cardinal vein, is competent to explain the changes which may be brought about by a slight deviation of the vein from its natural course, drawing down around it a pleural investment, thus isolating a portion of the lung. A remarkable confirmation of the correctness of this theory was to be found in the much greater rarity of the abnormal condition upon the left side of the body, for the persistence of the cardinal vein retaining its embryological connexion with the duct of Cuvier, while the usual arrangement upon the right side, upon the left is far from common. In connexion with this part of the subject the relationship of the vena azygos had entirely, and much too exclusively, engrossed the attention of writers. Thus, it had been overlooked, that as the determining limit of the lower margin of the pleural fold was undoubtedly the vena azygos, so, doubtless, the external limit was determined by another vein—the superior intercostal—itself the superior representative and main tributary of the azygos. In determining the origin and limits of the accessory lobe, it, therefore, deserved equal consideration with its coadjutor, the vena azygos. (For further details see a paper on "Accessory Lobes of the Human Lungs," by Dr. E. W. Collins, in *Trans. Roy. Irish Acad.*, April 13, 1874).—March 21, 1874.

Rupture of the Chordæ Tendinae of the Mitral Valve—Sudden Death.—DR. A. W. FOOT exhibited a specimen of this lesion, taken from the body of a man, aged twenty-three, who had died suddenly in the Meath Hospital, while in the act of getting into bed. The cords which were found broken across, about the middle of their course, were two or three of those attached to the musculus papillaris, which regulates the larger curtain of the mitral valve, and were those nearest to that portion of the

curtain which is adjacent to the inter-ventricular septum. The broken cords were studded with warty nodules of fibrin; both the ventricular and auricular surfaces of the principal curtain of the valve were covered with vegetations of a similar character, and continuous with those creeping along the chordæ tendineæ. The heart was large—empty of clots it weighed $17\frac{1}{2}$ oz.; the four cavities were dilated, and all contained more or less black blood in various degrees of consistence; the mitral aperture admitted three, the tricuspid four fingers. The free margin of the septum of Lieutaud was the seat of an elongated, roughened mass of soft fibrine, which made the edge of this curtain thick and lumpy. Dr. Foot considered that the chordæ tendineæ gave way in consequence of their erosion by ulcerative processes set going by endocarditis, and that on the sudden release of the septum of Lieutaud, with its elongated fibrinous appendage, this portion of the mitral valve flapped up into the orifice of the aorta, thereby causing death, which was almost instantaneous. The patient had been three months under Dr. Foot's observation; his first attack of rheumatic fever, six months before his death, was complicated by endocarditis; in three months he had a second attack of rheumatism, and at this time he exhibited all the physical signs of regurgitation through the mitral valve, and he had fully developed all the constitutional symptoms of this lesion.

When this patient first came under Dr. Foot's care, 14th May, 1872, he had been for four weeks suffering from his second attack of articular rheumatism; the joint affection had been very general, but had not been marked by great local severity, and he had continued to go about his business as a wine-porter till the 10th May. He had, on admission, a strong systolic apex murmur, audible all over the praecordium; the apex beat was very distinctly visible in its usual situation; it heaved up in the fifth intercostal space, and as it subsided two rapidly succeeding small "tips" were seen, followed as quickly by a double "dimpling" at the seat of visible impulse. When he lay on the right side the apex beat ceased to be visible, and the dimpling was scarcely perceptible; both were particularly marked when he sat up. The systolic mitral murmur was very audible at the apex of the left scapula, also at the apex of the right, and generally over the back. It was also ascertained that the second sound was louder to the left than to the right of the sternum, in the second intercostal space. He remained in hospital for a month, and during that time had almost daily attacks of epistaxis, small in quantity, evidenced by the fact, to which he frequently called attention, that he, every morning, blew "caked blood" out of his nose; he had also for two or three days an attack of most severe pain in the chest, referred to the upper portion of it, aggravated by coughing; he said the pain was extreme, and like a vice squeezing him from before backwards; he lay on his face to relieve it, and got ease by lying in this position, with his

arms crossed beneath, and pressed against the chest. Congestion of the lungs and liver was occasionally manifested by cough and expectoration, tinged with blood, and by pain over the liver, with bilious vomiting and purging. Six weeks after leaving the hospital he was re-admitted in great distress, from inability to lie down, or even lean backwards, and consequent inability to sleep; he had not been able to lie flat for three weeks, and seldom got one hour's sleep at night; he had "not a pain or ache," and was free from palpitation as long as he was in the upright position. The action of the heart was excited, 108; there was reduplication of each sound, but the asynchronism was generally regular; the mitral murmur was louder and more diffused than when last under observation; the constitutional symptoms were more advanced. After 30 grs. of chloral he had eight hours of good refreshing sleep, and he eagerly asked for a repetition of the dose; he lay on his face, with a pillow under his chest; he could not lean backwards, as that position induced cough. The next night the effect of the chloral was neutralised by a very smart attack of diarrhoea, induced by his own indiscretion in a matter of food, which kept him disturbed all night. He had none the following night; the diarrhoea continued, and early in the morning, as he was about to get into his bed on his return from the water-closet, he fell on his bed, gave a few sighs, and died at once, without speaking or making any cry or exclamation.

In addition to the cardiac lesions above mentioned, there was enlargement from congestion of the liver, spleen, and kidneys. The liver, weighing 5 lbs. $3\frac{1}{2}$ oz., showed the myristicated appearance over its cortical portion as dark red-brown blotches, in areas of pale greyish-yellow. The gall bladder was oedematous; its sub-serous tissue was infiltrated to the depth of half an inch; its cavity being much contracted, a cross section of it gave an appearance which might be called a concentric hypertrophy, while the pale dropsical coats strikingly contrasted in colour with the orange-red lining membrane. The large, soft, purple spleen weighed 35 oz. The kidneys weighed together $18\frac{1}{2}$ oz., the right 9 oz., the left $9\frac{1}{2}$ oz. The lungs, though much congested posteriorly, especially the left, were buoyant even in the most congested portions.—*March 28, 1874.*

Fibroid Phthisis.—DR. NIXON exhibited specimens which were taken from the body of a boy, aged twenty-one, who died whilst under his care in hospital. The history of the case was briefly as follows:—He was a butcher's apprentice, and had enjoyed good health up to last November. There was no hereditary or family history of phthisis. In November he suffered from cough, with purulent expectoration, which, however, he completely neglected. After a time the expectoration became profuse; it was especially abundant in the morning after sleep, and came up freely

with a cough. He now began to lose flesh, and to suffer from night sweats. At Christmas he had to give up work; the cough became more troublesome, and the expectoration thicker and more profuse. Up to the time of his admission he never spat blood. On the 8th of February, after a severe fit of coughing, he got a pain in the right side, about the 7th rib in the axillary line; this pain continued until his death. There was no pleural friction sound over its site. At the time of his admission (Feb. 10th), his condition was as follows:—He was very slight in make, fair complexioned, with a hectic flush upon the cheeks; a well marked pink line existed along the upper margin of the gums; the ends of the fingers were slightly clubbed; pulse 106, small and weak; temperature 99°.5; tongue moist and clean. The skin was dry and furfuraceous, and continued so to the end. Respiration abnormal and inferior costal; the upper part of chest wall of right side did not move; the decubitus was usually dorsal; he could not lie with ease on his left side; on the entire of the right side the intercostal spaces were found markedly retracted; in the horizontal posture, the apex beat of the heart could not be localised, but, when sitting up, it was observed beating to the left of the right nipple, whilst above it, at the 4th intercostal space, a pulsation was seen which was supposed to represent the auricular contractions; the pulmonary second sound was markedly accented; the area of cardiac dulness was diminished towards the left side; the left side of chest was normal on percussion, except at extreme apex, which was dull; breathing puerile over entire of it; the right side of chest was dull from apex to base, anteriorly and posteriorly; there was entire absence of suprACLAVICULAR resonance, a point much insisted upon by Seitz in the diagnosis of contracted lung; vocal fremitus and bronchophony were markedly increased over right lung; about three inches below the clavicle, for a space of about one and a-half inches square, the dulness was more or less tympanitic in character, and, upon auscultation, loud gurgling was heard—it was obvious that a large cavity existed there; over the entire of the lung, moist crepitation, gurgling, bronchial and tubular breathing were observed; he complained of tenderness over the liver, and there was evidence of hepatic enlargement. During the progress of the case, the same physical signs existed. He suffered towards the end from repeated attacks of diarrhoea which it was found very difficult to check. The expectoration came in gulps with the cough, and it was frequently tinged with blood. It was examined microscopically on several occasions, and distinct filaments of elastic tissue were found in it. The heart became more displaced, so that the impulse beat was found to the right of the right nipple. Some days before death his breathing became very short, and physical evidences implicating the left lung were heard. Upon coughing, general moist crepitation existed, but percussion was normal. The temperature rose to 102° F., and he died on 25th March. *Post-mortem*

appearances:—On raising the sternum, the heart was seen pushed considerably to the right of the mesial line by the enlarged left lung, but it did not seem sufficiently displaced to account for the position, during life, of the impulse beat. It is probable that the impulse of the heart represented in this case the right ventricular contraction. The right lung was about half its normal size. The pleura covering it was somewhat thickened. Six large irregularly-shaped cavities were found in it, into some of which dilated bronchi opened. These cavities were filled with blackish-looking fatty matter and some disintegrated lung *debris*. In one or two of the caverns branches of the pulmonary arteries were found crossing from one side to the other. A very large cavity existed a little below the apex of the lung, which accounted for the infra-clavicular tympanitic dulness. A number of distinct fibroid bands were found running through the lung in different directions; they were specially marked at the base. Some sparsely scattered tubercles were also found. In the left lung, at the apex, a small round patch of pneumonic consolidation was found. It was studded from apex to base with miliary tubercle. There were no cavities in it, and no increase of the connective tissue. In the greater part, the lung structure was normal. The heart was healthy. The pulmonary artery was dilated. The liver was slightly enlarged from fatty infiltration.

Dr. Nixon said the case was interesting as it illustrated one of the methods by which contraction of the lung was brought about, the only one with which he was practically familiar. No one who examined the specimen, and who reflected on the history of the case, would, he thought, be disposed to regard the disease as commencing in a primary inflammation and proliferation of the fibrous tissue stroma of the lung, and in this it differed in pathology from the disease so long ago originally described by Sir Dominic Corrigan. He believed the case was one which originally commenced as a catarrhal pneumonia, that the inflammatory products led to lobular infiltrations in the lung, and that these underwent the caseous degeneration. The pressure of these new formations caused in parts an arrest of nutrition which resulted in necrosis and the formation of multiple small abscesses. As a further consequence of the inflammatory action, a rapid increase in development of the connective tissue took place, resulting in the formation of those fibroid bands which contract the lung and dilate the bronchi. In part, no doubt, the enlargement of the latter is compensatory. The relation of tubercle to caseous degenerations explains the occurrence of the subsequent tuberculosis which existed. The rapid progress which miliary tubercle makes under certain conditions is too well known to need comment.—
March 28, 1874.

Cirrhosis of the Liver.—Dr. FINNY exhibited specimens of the liver

and lungs taken from the body of a man forty-nine years of age, who had been admitted under his care in the City of Dublin Hospital in the beginning of the present month, and died on last Tuesday. He was admitted for pulmonary phthisis attacking the upper part of the left lung, engaging the whole of the left lung in a short time, and then extending to the other lung. With the exception of these pulmonary symptoms, which, according to the man's own account, had existed only for five months, there was no symptom that would lead one to expect disease of the liver—neither jaundice, nor ascites, nor bleeding from the stomach or bowels. The liver, however, was a good example, not only of some fatty change which it had undergone, due to the affection of the lungs, but of cirrhosis, the left lobe was puckered up and reduced to one-third of the normal size. Not only was the left lobe engaged, but the lobulus Spigelii was engaged also. The fibrous disease was not confined to the structure of the liver, but involved the covering of the liver; for, on passing the finger into the inferior vena cava, he found a distinct fibrous band passing across it. The case was remarkable, not on account of its agreement with the usual symptoms, but for the total absence of the physical signs which were usually found in connexion with cirrhosis of the liver. While, however, there was an absence of the usual physical signs, the clinical history was in agreement with what was generally found to be that of this disease. The man was a store-house porter in connexion with the shipping of the port, and was, by his own account, in the habit of drinking freely of alcohol, and this doubtless produced the fibrous change in the liver.—*March 28, 1874.*

Cirrhosis of the Liver; Enlarged Spleen; Ague.—DR. JAMES LITTLE exhibited a diseased liver and spleen. The liver was a good deal contracted, especially the left lobe; it was firmer than natural, and granular, especially on the under surface. The spleen was increased to six or seven times its normal size. In the body of the young man from whom these parts were removed he found a large quantity of fluid in the peritoneal sac, and a large quantity of blood in the stomach; indeed the patient died in the act of vomiting blood. If these parts had been found in the dissecting room, very small doubt would have remained on the mind of any one examining them as to the sequence of events and the mode of explaining the pathological appearances. The case would have been recognised as one of cirrhosis of the liver, with secondary enlargement of the spleen; but this was not the sequence of events. The patient, who was twenty-one years of age, had suffered many years from ague. He lived in the neighbourhood of Clontarf, where ague occasionally prevailed. Three years ago he had an illness, during which his abdomen was distended to as great a degree as it was just before his death, but after some weeks, and without any particular treatment, this

swelling disappeared. A year and a-half ago he was in the Meath Hospital, under the care of Dr. Foot. At that time he suffered chiefly from uneasiness in the left side, evidently due to enlargement of the spleen, the result of the repeated attacks of ague. He enjoyed particularly good health for a year before his death up to a month ago, when he was seized suddenly with a feeling of nausea, and of weight in the stomach. Notwithstanding this feeling he went out to drive, when there came on profuse vomiting of blood, and he passed a large quantity of blood by stool—so large that he remained in an unconscious state for four days afterwards. When in the Meath Hospital he became aware of the enlargement of the spleen, and was in the habit of feeling it himself. He noticed that it was large some days before this last illness, but when he became conscious he said he was unable to feel the spleen. He remained without any other marked symptom for a fortnight, when he was seized with severe pains below the right false ribs, and the following day the swelling began to return in the belly. He was brought to hospital after a few days, when Dr. Little found the abdomen very full of ascitic fluid. He ventured to predict that the case was not one of cirrhosis of the liver but of thrombosis of the portal vein. He came to this conclusion on account of the suddenness with which the symptoms had developed themselves—the sudden vomiting of blood and the sudden pouring out of fluid into the peritoneal cavity. He was also led to form this opinion from the fact that a similar attack had been present some years before, and had subsided without any particular treatment. After being in hospital some days, another profuse haemorrhage occurred and the patient died. When he opened the body he found a small contracted liver. However, it turned out that the diagnosis was not in the main erroneous, for on examining the portal vein he found the junction between the mesenteric and the splenic veins occupied by a thrombus; this completely filled the superior mesenteric vein, and to the occlusion of that vein was probably due the pouring out of fluid into the peritoneal sac, and the impossibility of the blood being returned from the stomach through the portal vein was the cause of the profuse haemorrhage. The cirrhoued condition of the liver was more difficult to account for. He believed the cirrhosis of the liver was not found except in connexion with spirit drinking, and there was a clear history of the absence of drinking in the case of this young man. However, they knew that contraction of the liver did occur under other circumstances, and he thought probably what occurred had been this—at a period some time past, thrombi had formed in some of the hepatic branches of the porta, and that the cutting off of the supply of blood to certain parts of the liver had been sufficient to cause atrophy of the secreting structure.—*March 28, 1874.*

Intra-capsular Fractures of both Femora in the same Individual.—DR. E. H. BENNETT exhibited the pelvis and femora of an old woman, whose body was dissected in the School of Physic during the present session. He said:—The specimen I present is an instance of a rare occurrence—*intra-capsular fractures of both femora in the same individual*. As far as my knowledge goes, no similar specimen has been recorded. Examined separately, the femora are of little interest, as they present merely well-marked *intra-capsular fractures*, which have undergone the usual changes seen in cases where the injuries have occurred some time before the death of the subject. In both the neck of the bone has undergone complete absorption, both in the portions belonging to the superior and to the inferior fragments. The features of the injury were first noticed on the left side of the body, and the joint had been already opened by the students engaged in dissecting the limb before my attention was drawn to the specimen. A single exceptional feature was noticed by the gentlemen who had opened the joint, to examine the details of the injuries—namely, that the limb was found, on exact measurement, to be nearly an inch longer than its fellow. Finding this remarkable character present in a case of *intra-capsular fracture*, of the existence of which no doubt could exist, as the joint was already exposed, they asked me to examine the specimen, and explain the excess in the length of the limb. A glance at the right hip was sufficient to enable me to recognise that a fracture of the neck of the femur had occurred on the right side also. The trochanter was prominent, and displaced upwards to a greater degree than on the left side, while the absence of any enlargement of the trochanteric region of the bone and its great mobility pointed clearly to the diagnosis of the *intra-capsular variety*. The difference in length of the limbs, while both had apparently suffered the same injury, I considered was in all probability due to the fact that the two injuries had occurred at different times, that the bone of the right side had been fractured some considerable time before that of the left, and that the excess of shortening was due to greater use of the limb, and possibly to a greater absorption of the fractured surfaces. The examination of the specimens as I now present them, I think, bears out in great measure this opinion, for we find that the fracture on the right side presents a more extensive absorption than that on the left. The neck of the femur is gone entirely; the head of the bone has been in part absorbed; even the cartilage of encrustation is removed to a great extent, and the head moves with very little freedom in the acetabulum. On the left side the head of the femur preserves its cartilage unabsoed; it moves freely in the socket, presenting none of the erosions that its fellow shows. The neck has been nearly absorbed, but around the trochanteric line in front some bony deposit has taken place, apparently the result of inflammatory action at the insertion of the capsule. In the tendon of the psoas muscle, too, a spur of bone, such as

occurs so commonly in intra-capsular fractures, has been formed. All these differences are sufficient to explain the smaller degree of shortening on the left than on the right side, while the condition of the head of the bone is, I think, conclusive evidence that the fracture is of much more recent date than its fellow. The inflammatory changes would appear to be due to the difficulty which must have been experienced by the patient in attempting to use the limb, a difficulty greater than is usually experienced in cases where the second femur is still sound and unbroken. It is much to be regretted that we have no life history of the patient to verify these conclusions drawn from the specimens.—*March 28, 1874.*

Jaundice.—DR. WILLIAM MOORE said he had no previous history of the case he was about to bring under the notice of the Society. It was that of a woman admitted to Sir Patrick Dun's Hospital on the 20th of March, who stated she was fifty-six years of age, but he believed, from her appearance, that she was much older. She was jaundiced all over, but over and above the jaundice she presented some striking peculiarities. On both cheeks she had a white pearly patch. This patch had received the tint of the jaundice, but the patches of leucoderma on both cheeks were distinctly marked; and across the arch of the nose and the malar bones the skin was darker than any jaundice could make it, the tint being almost as dark as that of a mulatto. About the neck and in the folds of the axilla the skin was also extremely dark. The jaundice increased, the woman became weaker and weaker, and everything she took was rejected. There was no decided pain on pressure over the liver, and no enlargement of that organ. The case proved fatal within ten days. She died of asthenia. Dr. Barton had made a most careful *post-mortem* examination of the body. There was no evidence of tubercular disease of the thoracic viscera; there was a tinge of jaundice over the heart and lungs; there was no great enlargement of the liver, but it had a somewhat jaundiced tint, and the bile ducts were very much distended; the gall bladder was of remarkable size, and contained fully eight ounces of black bile. On coming to the top of the pancreas, it was found adherent to the duodenum, where a hard malignant ulcer existed, which had well nigh occluded the ductus communis choledochus. There was no structural disease of the kidneys; they presented a tint of jaundice, and there was a cyst external to one of them, but the structure was not interfered with. The liver, kidneys, and spleen were friable, but there was no evidence of organic disease of the structure. He thought the ulcer was the specific cause of death. The peculiar discoloration of the skin was the point of interest to which he desired to direct special attention. A careful examination of both supra-renal capsules had been made by his colleague, Dr. Thomas Little, but they presented no appearance of structural disease, nor were they in any way enlarged. Here, then, they had a case

of great discolouration of the skin, and yet, when they came to look at what was generally regarded as the *fons et origo mali*, disease of the supra-renal capsules, they found them intact. Some years ago he had another case of the kind in Sir Patrick Dun's Hospital, which was the *blackest case* on record. The discolouration was deeper than that of Habershon's case, which had been published by the Sydenham Society, as the most remarkable instance of the bronzed discolouration of the skin then known. There was some disease of the supra-renal capsules in Habershon's case, but none whatever in the more remarkable case in Sir Patrick Dun's Hospital to which he referred. That was the point to which he specially wished to draw the attention of the Society. He believed that though there might be darkness of the skin associated with disease of the supra-renal capsules, yet, under a malignant cachexia or tuberculosis, they might have a dark skin without any special disease of the supra-renal capsules.—*April 11, 1874.*

Disease of the Aorta.—DR. GRIMSHAW exhibited a heart removed from a man who died on the 29th of last month, in Steevens' Hospital. The man had been under his observation for nearly two years. He was forty-five years of age. During his early youth he had several attacks of rheumatic fever. The symptoms he complained of when he first saw him were bronchitis, and on examining his chest for that affection he detected a murmur over the aorta. The murmur was a single one. He treated him as an out-patient, and he got well of the bronchitis, and was lost sight of for nearly a year. In last autumn he came again to the hospital, and having recognised him at once, he listened for the murmur he had previously heard. He came, complaining of the same symptoms as before, but the bronchitis was very slightly marked. His pulmonary symptoms were owing apparently to the condition of the heart. On examining him more carefully he found that, instead of one murmur, he now had two. One was audible over the base of the heart, and was single; the other was a double murmur, and was heard over the apex. He learned that a month before the man's second appearance at hospital he had some swelling of the feet, evidently a tendency to cardiac dropsy. He came to the conclusion that he had obstructive aortic disease and consecutive mitral disease. Sometimes he got better, and when the weather was cold he got worse, and complained of rheumatism. He had no more dropsy until his appearance at the hospital on the 20th of last month, the day before his last admission. Dr. Grimshaw then found that he had been attacked with haemoptysis, with great dyspnoea; he could not lie down in bed, and was in a state of very great debility. He was relieved somewhat by the treatment employed, and was able to rest somewhat comfortably for a few days. He got worse, ultimately getting considerable dropsical effusion into the abdomen, anasarca of the legs, congestion

of the liver, and two days before his death was slightly jaundiced. Two months before his admission to hospital it was noticed that the murmur at the base of the heart was double. Dr. Grimshaw came to the conclusion that the man had regurgitation through the aortic valves and mitral dilatation. During the last few days of his illness his chest became completely dull over the right side, and some bronchial breathing was also audible in that side. After death he found the liver enlarged, the lungs congested in every possible place, and several apoplectic nodules in the right lung. The heart was very much enlarged, especially at the left side. The aorta was found to be atheromatous; two of the valves were comparatively healthy; one was evidently incompetent. The mitral valves were perfectly healthy. There was a slight opacity in one, but they were competent to close the opening, and unless, under great distension of the ventricle, there could have been no regurgitation through them. The result of the *post-mortem* was interesting, as pointing to the existence of a mitral regurgitant murmur, without any disease of the valve. The mitral murmur must have been caused by the dilatation of the vessel producing incompetency of the valve, the real disease lying in the aorta. The right cavity of the heart was healthy, but slightly dilated.—*April 11, 1874.*

Inversion of the Uterus—Amputation.—DR. SINCLAIR exhibited a uterus which he had removed twelve months previously in Sir P. Dun's Hospital.

A woman appeared at the dispensary very much bent, looking old, weak, haggard, thin, and anaemic, having all the appearance of a person suffering from advanced malignant disease of some internal organ. It was found upon inquiry that she was thirty-six years old, and had had five children, and that her last delivery occurred eight years previously. This delivery was stated to have been very protracted, and ever since she had suffered from repeated haemorrhagic discharges, and in the intervals of these from leucorrhœa. She complained of constant bearing down, and great and constant pain at the back of the pelvis; in fact, she was in a condition of complete misery. On examination, Dr. Sinclair found the vagina occupied by a tumour, and on endeavouring to trace it to its attachment, the finger came in contact with the wall of the vagina reflected, as it were, over towards, and continuous with the upper end of the mass, forming superiorly a *cul de sac* all round. No uterus could be felt upon making a suprapubic examination, but to make assurance doubly sure, a bent uterine sound was introduced into the bladder, and the index finger of the left hand up the rectum, when on turning the concavity of the sound towards the sacrum, and raising the handle towards the pubes, the finger could be brought almost in contact with the sound, the tissues of the bladder, rectum, and perhaps a

knuckle or two of the small intestines alone intervening; thus showing that the uterus was not *in situ*.

Upon further inquiry it was elicited that the woman had been delivered by a midwife, and that the placenta had not come away for more than two hours after delivery. No attempt had been made to remove it, but having necessity to evacuate her bladder she rose for that purpose and the placenta dropped into the utensil. She returned to bed very weak, and remained in that condition for a considerable time.

Dr. Sinclair came to the conclusion that this was a case of inverted uterus of long standing, or, as is improperly called, chronic inversion of the uterus. The other results of the examination were—profuse bleeding, considerable prostration, and much pain. It was necessary to administer cordials and opium. Perfect rest was enjoined for some days, during which period astringent lotions and styptics were used. Another examination was subsequently made, during which Dr. Sinclair attempted the taxis, but the manipulation was so painful, and the haemorrhage caused by it so profuse, that he soon abandoned the attempt and determined to remove the uterus.

No more unfavourable case could, in Dr. Sinclair's opinion, have been presented for the operation, but the certainly soon fatal termination having been explained to her, and the bare chance of recovery by the removal of the tumour having also been laid before her, she cheerfully consented. Accordingly, by means of a Gooch's double canula, a strong whipcord, well waxed, and thick enough just to fill the cylinders of the canula, the tumour was easily snared. The ligature was then tightened by the greatest amount of force that could be brought to pull on it, so that the uterus was completely strangled at once and for ever. She bore the operation very well, did not complain of much pain, not nearly so much as when the taxis was attempted, and her pulse, when placed in bed, was 90. There was a considerable gush of bleeding when the ligature was being "brought home" and secured, but it soon ceased. The stomach was unaffected. She was placed on full doses of opium, and a light poultice was constantly retained over the abdomen. The bladder was carefully attended to, and perfect rest enjoined. Milk diet. The ligature was tightened at every visit, morning and evening, for four days, and the vagina syringed with tepid water. On the 5th day the mass was in a state of decomposition, and Dr. Sinclair then determined to remove it.

During these four days the patient complained of considerable tenderness about the hypogastrium, and much tension from tympany. Warm poultices and stupefying was the only local treatment employed, but small doses of calomel and opium were administered at short intervals, so as rapidly just to touch the gums. These symptoms subsided and were nearly absent when she was placed upon the table on the 5th day after

the ligature was applied. Dr. Sinclair first tried the *ecraseur*. A piano wire was passed round the tumour, but it slipped over the surface of the tough but soft mass, and took off only a sliver from the anterior surface of the tumour. Another piano wire was then applied, but it snapped. Dr. Sinclair then did what he was sorry he did not do at first. By means of a *valsellum* the tumour was drawn down; the fingers of the left hand were passed along the canula posteriorly till they reached the furrow caused by the tightened ligature, and a little below this, by means of a uterine scissors, the mass was removed, with the exception of a very small portion below the ligature. The canula was now removed, but the whipcord was not interfered with. In three days the ligature and remaining small portions of the slough came away. From that moment the woman made rapid progress; in ten or twelve days after the uterus was removed she was sitting up; and in less than two months she was completely altered in appearance. She was in good condition; comparatively fat; had a good colour; looked much younger; was cheerful and happy. She left the Hospital in perfect health.



Dr. Sinclair exhibited the tumour and pointed out that the inverted peritoneal cavity, on the former external surface of the uterus, was very nearly obliterated. On one side there was no trace whatever of what are improperly called the appendages of the organ; but on the other there was something which might be the remains of an ovary and a Fallopian tube. His colleague, Dr. Thos. Little, who had carefully examined the specimen, found no ovarian structure on the left side, but on the other he found a trace of what he considered to be an ovary. Strong adhesions of the peritoneal surface were observable. The society had

heard of cases of reposition of what is called a chronic inversion of the uterus of long standing; and he had read of a case recorded, if he remembered aright, by the late Dr. Tyler Smith, in which a uterus was returned to its normal position eleven years after it had been inverted. That was a very fortunate case; but in the case he had just detailed, after eight years the peritoneal cavity was nearly obliterated; and, in his opinion, when the uterus was a long time in an inverted condition, the use of the taxis was dangerous. In these very old cases the chances were 100 to one that adhesions existed; and if the operator succeeded in returning the uterus the woman would probably die of peritonitis. Had he continued for any lengthened period, or used much force, when he attempted the taxis in the case just detailed, Dr. Sinclair had little doubt that result would have been fatal. Dr. Sinclair also presented a drawing which was a faithful representation of the uterus, half size. The peritoneal surface is exposed by an incision showing the adhesions and almost obliteration of the false cavity.—*April 11, 1874.*

Meningitis.—DR. FINNY exhibited an example of subacute meningitis of the brain with effusion in the ventricles, of two months' standing, in an adult. The patient, a man, aged 40, was admitted to the City of Dublin Hospital on the 3rd of February, and died on the 6th of this month. The symptoms of the patient were slight aberration of the intellect, and failure of strength, and emaciation. Though he took plenty of milk he became thinner and thinner. His pulse was always very small and hard to be counted. There was some slight fever when he came to hospital; in the evening his temperature was 100° or 101° and sank in the morning. When spoken to he would say he was quite well, and that he had just returned from doing business at the other side of town, or some similar fancy. He complained of nothing; became more feeble every day; occasionally there were attacks of vomiting, which, after a few days, passed away. He became so emaciated that bed sores began to form in various places. On making a *post-mortem* examination, nothing was discovered in the cavities of the thorax or of the abdomen, but on cutting into the arachnoid a quantity of fluid came out. The brain was rather hard all through, and the arachnoid was thickly covered with a yellowish matter. On laying open the brain from above the ventricles were quite arched, and a quantity of flocculent matter was found closely adherent to and running along the choroid plexus.

The case is interesting in being an example of a rather rare disease in adult life.—*April 11, 1874.*

Aneurism of the Aorta.—DR. FINNY said the specimens he exhibited possessed considerable features of interest, both in a pathological and a clinical point of view, inasmuch as they showed that very extensive

disease might exist with the absence of physical signs and symptoms. The specimens were taken from the body of a man, aged thirty-eight, who was admitted to the City of Dublin Hospital on the 9th of October, 1873, and died on the 3rd of the present month. The history, as given him by the resident pupil, was as follows:—He was a dairyman by trade, and of very intemperate habits, being frequently muddled with drink, but he never suffered from any illness till twelve months before his admission to hospital. He then suffered from cough, pain in the left side, and haemoptysis, and since that time he had never quite recovered his health, at one time being better, at another worse. Four months ago anasarca was observed commencing in the neck and upper parts of the body, and then extending to the legs and feet; so much so that on admission the whole body was completely swollen, and the cavities of the pleura and peritoneum became filled with fluid. The amount of ascites was small, and by no means in proportion to the cellular infiltration. The dyspnoea was intense at times, with great paroxysms of cough. On physical examination dulness was noticed under the right clavicle, which extended down the whole of the right side more or less, and the respiratory sounds in this region were those of consolidation and ulceration of the pulmonary tissue.

The area of cardiac dulness was slightly increased, the apex beat being ill-defined, and found lower down and more on the right side than normal; there was no heaving impulse or signs of hypertrophy. A systolic murmur was audible at the apex; and the second sound was hardly audible at the apex, but distinctly heard at the base. The examination of the abdomen showed a small amount of ascites, the hepatic dulness being somewhat diminished. The urine was smaller in quantity than normal; it was highly albuminous, and occasionally a cast was discovered. After ten days or a fortnight under treatment by diuretics, the swelling decreased, so much so that the patient was able to leave his bed and sit at the fire in the ward. The ascites lasted longer than the superficial oedema of the legs, and the thorax was oedematous longer than the lower part of the body. The oedema of the thorax was not confined to the parietes, as the physical signs of oedema of the lungs were well marked. Dyspeptic symptoms were the only ones he complained of, and constipation of the bowels existed, which generally had to be relieved by seidlitz powders. In the beginning of last month he came under Dr. Finny's care, and on examination he observed the same physical signs already noticed as to the lungs. The right side was dull from the apex to the diaphragm in front, and to a considerable extent behind, with all the other signs of advanced tuberculosis.

The cardiac dulness was increased more in the vertical direction, and the impulse was felt at the junction of the sixth and seventh cartilages to the left side of the sternum. Two murmurs were distinctly heard, one at the apex and the other at the base. His diagnosis was mitral

incompetency and aortic obstruction, apparently close to the valves. The pulse conveyed more the idea of a weak heart than of hypertrophy; it was compressible, but never collapsing. His diagnosis then was that it was a weak left heart, causing delay in the circulation, and thus producing dropsy. The patient continued in much the same state for a fortnight, when a new symptom appeared. His cough became much more troublesome, and assumed a laryngeal character. It was a short cough, not very loud, but with a great deal of stridor, which appeared to him to come from the larynx. The voice became very hoarse and husky. The breathing, though hurried, did not render it necessary for him to sit up in bed; in fact his usual position was on his back or right side, with his head very low. For a short time difficulty of swallowing was complained of, but on the third day before death this difficulty disappeared.

As he lay on his right side, the right eyelids became oedematous; the swelling on the right side of the neck was increased, so as to form a sort of bag of fluid, but the veins were not noticed to be unusually congested. On the morning of his death purpuric spots appeared on the right side of the body and face, and one particularly large was over the right knee.

On a *post-mortem* examination a great deal of disease was found which was not altogether expected. The examination was made fourteen hours after death. Rigor mortis was well marked; the body was greatly emaciated, and of a yellowish colour; there was no oedema except about the eyelids. On lifting the sternum the left lung was seen pretty freely lapping over the pericardium, while the pericardium was distended with fluid. The right lung was not visible until separation was made of the sternal attachment of the ribs. On slitting open the pericardium it was found that the pericardial sac extended higher than was generally seen; it was quite up to the opening of the innominate artery. This was evidently due to some inflammatory action within the pericardium, which caused an apparent extension of the pericardial sac upwards.

The pericardium, though full of fluid, did not press against the sternum, or bulge out between the ribs.

The apex of the heart was made by the right ventricle, and not by the left. On slitting it up the right ventricle was found to be lower down by one-third of an inch than the left. On opening the upper part of the pericardial sac, a large tumour was found—an aneurism of considerable dimensions—which was hidden from view until the pericardium had been laid open. The right ventricle was greatly hypertrophied, dilated in its cavity, especially the conus arteriosus, which was carried up further to the left side than natural; the moderator band of King was increased to six times its normal size; the muscular papillæ and the carneæ columnæ were hypertrophied, and covered over with a whitish layer. This whitish matter could be scraped off, and the muscles of the heart underneath, having been examined microscopically, showed no sign of

fatty degeneration. On slitting up the right auricle, it was found that the orifice of the superior vena cava could not be seen in consequence of the aneurism; and on passing a finger underneath it was found that the vessel was pressed upon by the right side of the aneurismal sac. The aneurism pressed over to the right phrenic nerve, but did not seem to have engaged that nerve. On the left side the aneurismal sac was found bulging back, and pressing the pulmonary artery, so that to reach the line through the vessel the finger had to be put well under the tumour. Here also the tumour had projected over to the phrenic nerve, filling the whole of the anterior mediastinum. It had extended upwards to the right side, passing the origin of the innominate artery, which it had thrown more to the middle line than usual. They found it had pressed upon the lung and pleura, and was closely adherent to a chain of glands which extended to the root of the neck on the right side, so that to separate them seemed to tear the aneurismal walls. Passing to the left, it was found to be strictly limited by the ductus arteriosus, the left recurrent nerve not being affected.

The wall of the left pulmonary artery seemed to be pressed upon by this aneurism, and on dissection he was unable to separate the wall of the sac from the wall of the pulmonary artery at its bifurcation. The pulmonary veins were free of the sac. Passing backwards, the sac went as far as the bifurcation of the trachea and the right bronchus; but as there was no evidence in the trachea of any inflammatory changes, it would seem that the pressure was not very great. On laying open the sac, its walls were found to be of irregular dimensions. At its greatest height there was found a laminated layer, half an inch in thickness, of fibrin, very easily separable into different strata. Lying loose in the sac was a soft clot, similar to that in the right side of the heart, and evidently a *post-mortem* phenomenon. This sac, on the anterior and upper part, passed free of the origin of the large vessels going to the neck, and a second pouch was formed which passed to the left, and this was the pouch that was hidden by the lung. On looking into the sac towards the heart, they found a prominent ridge dividing it into two compartments, which corresponded to the two pouches.

The aortic valves were perfectly healthy, and held water; but the aorta was extensively diseased, and of the various patches to be observed, one was decidedly calcareous. Passing from the examination of the circulatory to the respiratory organs, the left lung appeared to be in a state of emphysema. It was studded with a number of large nodules, and one of these nodules under a cicatrix was quite calcareous. The bronchial glands were also indurated and enlarged. The right lung was almost entirely disorganised, the upper lobe completely so, the lower lobe to a great extent.

On making a section of the lung it was found to present a fibroid

character, distinct bands of fibrous tissue running through the substance of it. The other viscera presented evidence of tubercular degeneration. On looking to the stomach and intestines, a good example was presented of tubercular degeneration of the mesenteric glands, and the intestine itself was affected by ulceration. The only clinical point of interest here was the constant constipation which the man suffered from. On opening the lower part of the ileum, near the ileo-cæcal valve, ulceration of the glands was found to be very extensive; some were circular, engaging the glands of Peyer, and others engaged not only the patches, but the whole surface of the intestine. On carrying the investigation further down, they found about the ileo-cæcal valve an enormous amount of this ulcerative process, the valve being quite diseased and one mass of ulceration. The spleen also presented nodules, which might be called tubercles, though they did not seem to be exactly of that form. The liver was smaller in size than natural, and there were seen scattered through it some of these yellow nodules, generally underneath the peritoneum, and extending to the substance below. The kidneys seemed moderately healthy, though there were one or two spots in which were found a yellow cheesy-like matter—these most probably were due to emboli. On opening the left ventricle to compare it with the right, while the latter was greatly distended and hypertrophied, the left ventricle was much smaller than usual. The auriculo-ventricular opening was perfectly healthy; the aortic opening was also perfectly healthy; in fact, there was no valvular disease anywhere, although, during life, the murmurs were, by many, supposed to be produced by some valvular incompetence.

The point of interest in this case was the existence of an aneurismal sac of such large size, in the immediate neighbourhood of such important structures, without causing the symptoms or signs of pressure, except to a very moderate degree. It had just escaped most of the nerves in the neighbourhood. The phrenic nerves, though they lay so close, were not touched by it. The pneumogastric nerve passed free of it, but it was more remarkable why the physical signs of pressure were absent. He accounted for it in this way, that when the aneurism did not approach the surface of the chest, it was easy to understand that the physical signs of a tumour, placed as in this case, would be absent, for there was then an intermediate space between it and the chest wall. The signs of pulsation and dulness on percussion were accordingly lost. Another factor in this case, which increased the difficulty of diagnosis, was the emphysematous condition of the left lung, which, by overlapping the aneurismal sac, masked many of the signs of mediastinal tumour.

The absence of hypertrophy of the left ventricle was a point of importance. It confirmed the statement of Dr. Stokes, that the existence of a large aneurism in the neighbourhood of the heart exercised but

little or no influence in producing hypertrophy of that organ. It was possible that the existence of chronic endarteritis caused this sac to be produced, and it then extended down towards the heart, and through the wall of the artery, to its pericardial covering, and thus the adhesions found in the pericardium were due to this inflammation, for there were no other signs of pericarditis. This condition of the artery was rare at the age of this man, who was only thirty-three. Virchow said it was common to find endarteritis in old people, but that in young people it was rare. He (Dr. Finny) believed that in this case it was due to the kind of life the man lived. He was always muddled with drink, but not actually drunk. Endarteritis was found in those cases, especially where there was a gouty, rheumatic, or syphilitic taint. There was no history of syphilis in this case, but on the *post-mortem* examination a distinct cicatrix was found on the penis, doubtless the result of a syphilitic attack. The last point of interest was the connexion of the aneurism with phthisis. Walsh and Rokitansky taught that the connexion of phthisis with aneurism was rare. Dr. Stokes, on the contrary, said that the morbid condition which most frequently accompanied aneurism was that of tubercle, and that, under those circumstances, the symptoms of phthisis were often doubtful, irregular, and slowly progressive, and death occurred frequently without rupture of the aneurism.—*April 11, 1874.*

Pericarditis.—DR. FINNY exhibited a specimen illustrative of a case of acute pericarditis of a recent date. The subject was a man thirty-one years of age, a labourer, of very intemperate habits. He had been occupied in various trades and businesses, and was evidently a man who had led a very dissipated life, and been exposed to a great many hardships. He was admitted to the City of Dublin Hospital on the 27th of January, having been brought in by a policeman, who found him lying on a doorstep in Irishtown. As to why he was there, he could give no account, except that he preferred to be there. When in hospital on the 31st of January his temperature was 101°.8. It remained between 100° and 102° till February the 5th, when it rose to 103°. It continued for a few days at that, and then sank to 100°. The beats of the pulse varied from 92 to 104. On the 10th of February the pulse reached 108. There was no well-marked symptom referred to the chest or head. His nervous symptoms were peculiar. He frequently complained for some time before his death of curious fits at night. It seemed, from the description, to be more of the nature of a nightmare than anything else. Dr. Finny happened to see him in one of these fits in the morning. He became purple in the face, the pupils were widely dilated, he turned on his right side, and remained in a semi-conscious condition for a minute or two. He always described his sensations as if some individual came towards him on the left side, and he turned on his right to avoid him.

The fits were, probably, of an epileptiform nature, but not true epilepsy. On a physical examination it was observed that there was some flattening in the right clavicle and the right side. The right scapula was dislocated from its pocket in the latissimus dorsi muscle. The heart was beating in the epigastrum, pressed down by the inflated lungs.

Percussion gave a clear note on the whole of the left side, and to a considerable extent on the right. Posteriorly on the right side, near the inferior angle of the scapula, there was comparative dulness, but nothing of a very positive character; and muco-crepitant rales, evidently of a coarse nature, and giving the idea that a breaking down of the lung was taking place. With the exception of these signs, there was nothing indicative of advanced disease in the lung. The temperature, which had been 100°, sank to 99°, and came down to the normal standard on the 7th of March, and remained normal until the 11th of the present month (April). During that time the man seemed to be in a general state of good health; slept well, ate well, and complained of nothing. In the evenings the pulse was 82, and in the mornings normal. The temperature was about normal. On the evening of the 11th of April, Dr. Finny observed that the pulse had sunk from 72 to 64, and that at every 18 or 20 beats it missed a beat. This intermittence of the pulse had been observed to be a sign of pericarditis. He (Dr. Finny) at once examined the heart, and heard a friction sound over the ensiform cartilage, where the apex seemed to be. Day by day the friction spread all over the front of the cardiac region.

Owing to the overlapping of the pericardium by the lungs, the presence of fluid could not be ascertained, though it was evident that if any existed, it could not be to any large extent.

The temperature at that time, on the 11th, was 100°·4, but sunk to normal within the last few days. The pulse became weaker during the two or three days preceding death, and he died on the previous morning (April 17th). The pericardium presented a well-marked example of acute pericarditis of the villous or hirsute variety. It contained nine ounces of fluid. This was of a bloody nature, and highly albuminous. The bloody character was derived from the state of the pericardial membrane, which was in a state of intense vascularity, particularly in the lower and back part, where some haemorrhagic spots were visible.

On the right side, where the superior vena cava entered into the pericardium, there were thick flakes of lymph. Underneath that the pericardium seemed to be vascular, but not rough; while on the anterior aspect, and by the origin of the aorta, the lymph was thrown into coarse, rough rugæ, resembling all the many things it has been described like, but more like the rough side of tripe than anything else. The valves of the heart were free from disease, except those of the pulmonary artery, which presented a slight cloudiness. On examining the walls of the

heart he found there was an additional feature. The left ventricle was thickened in its walls; the walls seemed to be fatty, and there was a layer of fat deposited round the surface of the heart, chiefly at the apex. On laying open the right ventricle there seemed to be a shoulder between the ventricle and the auricle, but it had no connexion with the ventricle; it was a mass of fat in the wall of the ventricle, measuring from one-third to one-fourth of an inch in depth. Dr. Stokes, who saw this case, tells me he never saw a similar specimen. There was great difficulty in removing the lung. There had been old pleurisy of the right lung, the pleura costalis being adherent, and taking the marks of the ribs, from which they could hardly be separated. The lower part was not so much adherent as the upper, while one or two encysted pleurisies were opened in removal.

On making a section of the lung, the diagnosis that the lower part of the right lung had been undergoing caseous degeneration was confirmed. There were several nodules as well throughout the right lung, and some also in the left. On the surface of the pleura and outer surface of the pericardium there were various tubercles of the miliary variety. The case was one of caseous pneumonia going on for some time in a very insidious form—probably the result of former pleurisy. Inflammation extended by contiguity into the pericardium, and the pericarditis thus caused was finally the cause of death. This form of pericarditis had no connexion with tubercle. The latency of pericarditis was well shown in this case, for had it not been for the pulse falling and being intermittent, it might have been passed over. Pericarditis was most common in connexion with rheumatic fever, but Niemeyer stated that, next to rheumatic fever and Bright's disease, tuberculosis was the most common cause of this disease.

The kidneys, Dr. Finny stated, were a good example of a large hypertrophied left kidney and a small right kidney. It seemed to be more congenital than the result of disease, although the lobulation of the kidney might make one think it the commencement of degeneration.—April 18, 1874.

Enteric Fever.—DR. HAYDEN brought before the Society a case illustrative of the formidable character of the typhoid fever at present prevalent in Dublin. The details of the case were very brief. A man, aged twenty-four, who had been of exceedingly intemperate habits, was admitted to the Mater Misericordiae Hospital on the 26th of last month (March). He was on the eleventh day of typhoid fever. The case, to all appearance, was an exceedingly mild one. His symptoms were apparently of the most trivial character, considering the disease from which he was suffering. His principal complaint was of pain in the back. He had had diarrhoea rather of a mild character, but it had ceased when he

came under Dr. Hayden's care. On the evening of admission his temperature was 104°, his pulse 98. His condition scarcely varied from day to day. On the morning of the 28th, the thirteenth day of his illness, Dr. Hayden discovered, for the first time, three rose spots on his back. His condition excited no uneasiness; there was no diarrhoea; his temperature was below par for typhoid fever; but on the evening of that day he was attacked with diarrhoea, accompanied by vomiting, and, concurrently with this, profuse sweating. Shortly afterwards he complained of acute pain in the abdomen, which was found to be inflated and tender on pressure, at the same time his temperature fell considerably, and his pulse went up. When Dr. Hayden saw him on the following morning, the fourteenth day of the fever, according to his calculation, he was suffering from well-pronounced peritonitis, and in the course of that day he died. The examination of the abdomen showed that the man had had undoubtedly typhoid fever, with old ulcerations of the ileum. The ulcerations had been all but cicatrised; there had been complete elimination of the typhoid matter from the intestinal glands, but at one point, where the intestinal wall had become exceedingly thin, rupture had taken place by sloughing, and peritonitis had followed. The perforation was situated about six inches from the ileo-caecal orifice. Complete discharge of the typhoid deposit had taken place, and an aperture, large on the mucous surface, but comparatively small on the peritoneal surface, had been formed. The lymph, the result of the effusion in the peritoneal cavity, could be seen in the specimens. In several other situations the ulcers were to be seen; the edges rounded off, and all but cicatrised. The transverse layer of the muscular fibre of the intestine was very well seen, forming the fundus of the ulcers close to the cæcum. There was no vascularity. The man had been all but cured, but at this point the wall had been too much thinned, and, owing to some misadventure, most probably flatulent distension of the bowel, it gave way, and extravasation of the intestinal contents was the result.—April 18, 1874.

Lympho-sarcoma of the Face.—DR. REUBEN J. HARVEY exhibited a mask taken from the body of a woman sixty years of age, who was admitted into the Richmond Hospital under the care of Professor Stokes early last October.

On her admission into hospital there were several tumours about the face which gave it a dreadfully distorted and very hideous appearance. One tumour was on the left side of the nose; one on the brow at the outside of the right orbit; one below the right orbit over the malar bone; and the principal one in the centre of the forehead. The general appearance of the tumours would be better seen from the cast taken shortly after death, as they had considerably diminished in size, owing to the hardening to which they had been subjected.

The only history of the case obtained was that some six months previously she had fallen and hurt her eye, when she had recourse to some "old woman," who gave her a white powder to rub to it; and to this the patient herself attributed the occurrence of the tumours. The idea of their being syphilitic was suggested, but was given up, both on account of the nature of the tumours and from there being no history of syphilis beyond the bare fact of her husband having been for some time under treatment in the Lock Hospital.

The only fact in the clinical history worthy of mention was that one morning, a few days before death, the tumours, which had been enormously large, were found to have very much subsided. They remained in this state until a day or two before death, when they again became somewhat larger. Such was the condition shown by the cast, which therefore gave but an inadequate idea of what had existed on her admission into hospital. There were two other tumours, one on the back of the left wrist, the other on the right wrist. The woman was partly aphonic, and on examination the larynx was found to be in a state of chronic inflammation; the vocal cords were considerably thickened, and there was imperfect mobility of the arytenoid cartilages.

The specimen had been handed to him for microscopical examination. On cutting into the tumour and scraping the cut surface, a considerable amount of juice was obtained. Under the microscope this proved to be rich in lymphoid cells. Sections gave at first the idea of an ordinary round-cell sarcoma, but throughout some delicate fibres were discoverable. On further hardening the tumours and making a more careful examination, he found that the structure was what might best be described by the term "lympho-sarcoma"—an exquisitely delicate cellular reticulum, containing within its meshes a vast number of lymphoid cells.

The feature which he thought particularly interesting was that, on carefully examining the frontal tumour, it appeared to originate in the sarcolemma of the occipito-frontalis muscle. The sarcolemma was seen in all stages of proliferation, and the reticulum was in direct connexion with it.

The tumour engaged the periosteum; for, on removing it from the bone, the periosteum appeared softened, but there was nothing abnormal in the bone beyond slight injection. Internally the calvarium was quite healthy.

The tumours were exceedingly vascular, to which might be attributed this sudden subsidence, owing to the failure of the circulation before death. As to the subsequent increase in size, it was difficult to give an explanation. It was, however, worthy of consideration whether the structural similarity of the tumours to lymphatic glands might not point to a similarity of function.—*April 18, 1874.*

Multiple Fractures.—DR. BENNETT said:—These specimens, which I now exhibit to the Society were taken from the body of one of the men involved in a recent accident at the gas-works—the falling-in of the roof of the retort house. They are of interest rather for the great extent and number of the injuries, than for any special feature attached to the individual specimens. The symptoms which the man presented when he was brought into hospital were of some importance in a practical point of view. He was brought in in a state of great pain, perfectly conscious, collapsed, but the collapse was not so great as to lead one to anticipate a rapidly fatal result. He was quite conscious, and so fully in possession of his mental faculties as to be able to tell the number of men engaged on the work with him, and to say that there were probably no more than four in all involved in the accident, and also to discuss with us the nature of his own case ; but while he had this clearness of mind, it was remarkable that he declined to admit that the limbs, which were most seriously injured, had suffered at all ; all his distress was thoracic, and seemed rather to be a longing for air than pain. The right lower limb was completely smashed. The lower third of the thigh bone presented a transverse fracture—a form of injury rarely met with in the lower third of the femur, where oblique fractures are the rule. The fracture was easily reduced, and the indentations of the bone were sufficient to keep it in position. Much blood was effused round the fracture, and into the tissues about the capsule of the knee, but at the *post-mortem* examination the joint was found not opened, the blood being external to the synovial cavity. Lower down, near the ankle, there was an oblique fracture of the tibia and the fibula. There was no external wound near either the fracture of the leg or thigh. When the condition of the limb was about to be examined the man said there was nothing wrong with it. He complained bitterly, however, of injury to the opposite limb, the skin of which alone was slightly injured, when his attention was directed to it. A singular deformity of the elbow of the right side existed. At a glance it was evident that the injury, as far as the deformity was concerned, was not recent. When my colleague, Dr. M'Dowell, was examining it, the man said :—“That is an old business ; it happened many years ago ;” but he could not tell what the accident was. The deformity was that of an unreduced luxation, with enlargement of the ends of the bones. A crepitus could be felt on handling the joint, and a bruise showed that it had been struck in the fall ; but the patient persistently stated that the examination gave no pain, that the joint had not been hurt at all. There existed, however, a recent oblique fracture, traversing the lower end of the humerus, as the preparation on the table showed. I shall abstain from any further description of the deformity of this joint, the result of former injury, for the condition cannot be exactly ascertained until the bones have been macerated. Notwithstanding these three grave injuries,

the man declined to admit that he suffered from anything connected with the right arm or right leg. His great distress was difficulty of breathing, and he occupied a semi-erect position in bed on that account. An extensive rupture of the chest wall had occurred, and we could see that emphysema of the areolar tissue had taken place, and was rapidly increasing. The skin of the neck and upper part of the chest was inflated, and seemed to fill more and more with each respiration. The only other actual fracture we could detect at that time was a fracture of the sternum at the level of the junction of the manubrium and gladiolus. The specimen shows that this was rather a tearing asunder of the cartilage still existing between the parts of the bone than a true bone fracture. The patient's extreme difficulty of breathing prevented very detailed examination of the ribs during life. It was evident, however, that extensive fractures existed, particularly at the upper part of the chest. At the *post-mortem* examination it was found that the first rib on the right side had its cartilage separated from the bone, and that posteriorly the neck was fractured obliquely. On the opposite side a fracture of the first rib had taken place, close to its junction with its cartilage. On the right side of the chest every rib was broken. The first, second, and third ribs on this side were broken in two places, and they were broken on the opposite side also. The lung was wounded at several points corresponding to the rib fractures. The man lived for two or three hours. As soon as ever reaction seemed likely to set in he died. I have brought here the entire of the thoracic viscera, and you will see that for nearly every rib on the right side there is a corresponding indentation into the tissue of the lung. The emphysema was caused by the injury inflicted by the first rib. The right lung was adherent for the space of the palm of my hand at the seat of the fracture of the first rib on the right side, and the tissue was cut open, so that the air cells communicated with the areolar tissue of the body. The man was thirty-five years of age. He and three other men were engaged on the roof of the gas works when it gave way, and they all fell down together with the roof. We cannot tell, however, the exact manner in which they fell. Two of the three men were seriously hurt, both were unable to give any account of the accident, and at first sight appeared more gravely injured than their companion, who sustained the various injuries already alluded to. The third, though least hurt of all, was quite incoherent on admission. None of the three had, however, any fracture, except that of an ulna and a single rib.—*April 25, 1874.*

Renal Calculus.—DR. REUBEN HARVEY exhibited an enormous renal calculus, which had been found in the body of a horse.

He sent to the knacker's for some eyes for the purpose of demonstration, and there was sent to him a lump of very badly-smelling material, which he was told was the kidney of a horse. He found that the stone

formed the greater part of this mass, and that the kidney was little more than a capsule around it. In parts the renal structure was easily discernible, but in others it had been quite absorbed and was replaced by strong fibrous material. The ureter was free.

The stone was smooth and polished on its convex surface, and presented several depressed facets, evidently the result of attrition, with a number of small stones which had been found *in situ* on opening the kidney. The cornua and the surface between them were studded with rough tubercles.

The stones together weighed $2\frac{1}{4}$ lb. They were intensely hard, and were composed almost entirely of carbonate of lime, with a small admixture of magnesium.—*April 25, 1874.*

Fibroid Tumours of Uterus; Rupture of Tubo-ovarian Cyst; Peritonitis.—DR. M'SWINEY—The specimen which I have the honour to exhibit comprises the uterus, ovaries, and Fallopian tubes in a state of disease, of a woman aged between forty and fifty, who died this week in Jervis-street Hospital. She was brought to the hospital in a sinking state on Monday last. Her condition was then as follows:—She was nearly pulseless, quite cold, respiring between forty and fifty times gaspingly in a minute, and lying prostrate on her back, with the legs *extended*. On examining her I found the following state of affairs:—The abdomen was extremely tumid and prominent, and highly tympanitic upon percussion. It was exceedingly sensitive to the touch—the slightest pressure of the hand revealed the fact that it was exquisitely painful. She was scarcely able to speak, but I collected from her the following history of her case:—She said she was a married woman, and had had several children, the last one about six years before the present time. Her last pregnancy did not terminate favourably; it was some form of miscarriage, and the child was not alive when born. After this she said she got disease of the womb, and went to Dr. John Hamilton, and was operated on by him once a week for five or six weeks. She then got well, she said, and remained in good health until the present time, with the exception that at each menstrual period there was an unusual flow of the catamenial discharge. She said “she had her changes very heavy” at every menstrual period. Five weeks ago she was attacked with profuse uterine haemorrhage, continuing unceasingly for the five weeks, so that it very nearly exhausted her life, and she was reduced to the last degree of weakness and prostration from it. Three or four days before I saw her the uterine haemorrhage had ceased, and she was suddenly attacked with the most acute pain in the abdomen. This pain was intensely acute and constant, giving her no ease night or day, and continued to the time she was taken into the hospital in a dying state. Two things were very evident from an examination of the woman at that time—one was that she was dying, and the other that she was suffering from extensive peritonitis. The condition of the parts

examined after death was as follows:—Evidence of the most extensive general inflammation of the peritoneum was abundantly present in the abdominal cavity. All the organs and parts were glued together by recently-effused lymph. There was also a considerable quantity of a purulent-looking thin fluid in the peritoneal cavity. There was, moreover, evidence of remote inflammation of the peritoneum, more particularly of the peritoneum at the lower part of the abdominal cavity. A thick false membrane was found here. The front of the uterus was bound down to the bladder. The bladder was so thoroughly concealed that at first it was not easy to determine that there was such an organ at all. At the time of the autopsy it was covered with this dense thick peritoneal layer, requiring dissection to reveal its existence. The uterus and Fallopian tubes and ovaries were found in a state of disease. The uterus was enlarged, and its shape was altered; it now presented somewhat of a square-shaped appearance. Projecting from the front anterior aspect of the uterus was a globular bulge out of the texture of the organ itself—being, in fact, a segment of a globe, which, if continued backwards, would be about the size of a billiard ball. The other portion of the uterus felt hard and unyielding to the touch. The Fallopian tubes at the left side afford a good example of the condition called dropsy of the Fallopian tube, which is not frequently met with, in which the fimbriated extremity of the tube is adherent to the ovaries, and is dilated into a cyst containing fluid. The calibre of the tube as it is continued into this large cystic fimbriated extremity is considerably enlarged. At the right side the same condition of parts is seen, but in a very much lesser degree; nevertheless, the Fallopian tube on the right side is decidedly four, five, or six times larger than we generally see it, and it also presents a cystic enlargement at its termination in the ovary. I may state now that it was by rupture of the cyst in the right ovary, where it is indissolubly united to the fimbriated extremity of the Fallopian tube, that the peritonitis was set up which was the cause of death in this case. I found it so ruptured when making the autopsy. I have laid open the uterus and find internally a soft sub-mucous fibroid tumour, which Dr. Bennett informs me is the fibroid tumour of Rokitansky, and which is attached by its base to the upper end or fundus of the uterus. At its extremity you see a clot—the last remains of that terrific haemorrhage which flooded the woman's life very nearly away for five weeks preceding her death. Dr. M'Swiney then cut into the tumour and showed it to the members. He observed in conclusion:—This specimen is interesting as affording an example of death by peritonitis, due to the bursting of an ovarian cyst, or tubo-ovarian cyst, occurring in a case of fibroid tumour or tumours of the uterus. Dr. M'Clintock has stated as the result of his experience that the most common form of death in these cases is by peritonitis.—April 25, 1874.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. VII.—*Notes on Strangulated Hernia.* By Wm. STOKES, M.D., Ch. M. Univ. Dub., M.R.I.A.; Fellow, Professor of Surgery, and Member of Council, Royal College of Surgeons; Surgeon to Richmond Surgical Hospital; Fellow of the Royal Medico-Chirurgical Society of London.

I.—STRANGULATED INGUINO-SCROTAL HERNIA OF ENORMOUS SIZE; PREVIOUSLY INCARCERATED; PROBABLY CONGENITAL; HERNIOTOMY.

II.—STRANGULATED FEMORAL HERNIA OF UNUSUAL FORM AND SIZE; HERNIOTOMY; OPERATION PERFORMED WITHOUT OPENING THE SAC.

III.—STRANGULATED INGUINO-SCROTAL HERNIA; DURATION OF STRANGULATION, FIVE DAYS; HERNIOTOMY.

IV.—STRANGULATED FEMORAL HERNIA; HERNIOTOMY.

V.—STRANGULATED FEMORAL HERNIA; INTESTINE STRANGULATED WITHIN A SAC FORMED OF OMENTUM; DURATION OF STRANGULATION, TWELVE DAYS; HERNIOTOMY.

VI.—STRANGULATED INGUINO-SCROTAL HERNIA; HERNIOTOMY.

VII.—STRANGULATED FEMORAL HERNIA OF ENORMOUS SIZE; TREATMENT BY ENEMATA AND HOT BATHS.

VIII.—OBSCURE CASE OF INGUINO-SCROTAL HERNIA, WITH SYMPTOMS OF STRANGULATION; HERNIOTOMY.

IX.—SYMPTOMS OF STRANGULATED HERNIA IN A CASE OF GLANDULAR INFLAMMATION.

X.—STRANGULATED INGUINO-SCROTAL HERNIA; DOUBLE STRICTURE; HERNIOTOMY.

FROM the generally acknowledged fact that every case of strangulated hernia has its own special peculiarities and complications, has arisen the wide divergence of opinion among many surgeons of distinction and experience in reference to the treatment of such cases. In certain forms of this lesion, in truth, the question as to what course should be pursued, in order to give the patient the best prospect of recovery, becomes at times a problem than which there is none more difficult to solve in the wide domain of surgical practice.

The rule laid down by some to operate early in all cases, when symptoms of strangulation are present, is, doubtless, a very simple one; but few surgeons of even a limited experience will, I think, be disposed to accept it as sound. As Sir James Paget has observed—"If you will follow this easy rule, you will do some very bad surgery; you will kill a few patients whose lives you ought to save, and you will make many ill for two or more weeks who might be well in as many days or hours." On the other hand, the doctrine held by some eminent American surgeons—notably Professor Gross, of Philadelphia—that almost every case, no matter how long or severely strangulated, can be relieved by the taxis, is, I think, even more questionable. The methods, not inaptly termed by some, "reduction at all hazards," whether done by the taxis, as usually applied, by continued pressure, or by Baron Seutin's method, as recently advocated by Mr. Fifield, of Boston, which consists, in rupturing the hernial ring, "by continuous forced dilatation," for which "considerable strength" has sometimes to be exerted, are equally to be deprecated, the latter, especially, being, as Mr. Le Gros Clarke has truthfully observed, "a proceeding fraught with danger, and altogether opposed to sound surgical practice, based on acquaintance with the pathology of hernia." Between these two extremes—the early operation and the reduction at all hazards—lies, probably, the rational method of treating

* Lectures on Strangulated Hernia. By Sir James Paget, Bart. British Med. Journal.

strangulated hernia; and the surgeon must, in truth, face the consideration and practical study of this condition with the knowledge that there is not, and, I believe, never can be, a routine line of practice for its treatment. It has, therefore, always appeared to me that, in the existing state of our knowledge of strangulated hernia, laying down definite rules for the surgeon to follow in such cases, is a course the advantage of which is doubtful. No surgeon has, as yet, had opportunities for making statistical deductions in reference to the treatment of strangulated hernia of much importance, "for it would need," as Sir James Paget has truthfully observed, "a tabulation of at least a thousand cases to obtain conclusions of real value."

This, I think, makes the duty of every surgeon recording his experience of strangulated hernia the more imperative, as it is only by the study of accurately recorded cases, by bearing in mind the symptoms, peculiarities, and complications of the cases that have fallen under his own observation, and, when occasion offers, studying minutely the pathology of the lesion, that the surgeon can ever hope to acquire that almost intuitive knowledge, if I may so term it, so characteristic of many great surgeons, of how to act when difficulties in the operation for strangulated hernia present themselves to him for the first time.

CASE I.—*Enormous Incarcerated and subsequently Strangulated Inguino-Scrotal Hernia, probably Congenital; Difficulty of Diagnosis; Herniotomy.*

Thomas F., aged thirty, by occupation a cooper, was admitted into the Richmond Hospital, under my care, on June 8th, 1868. He stated that he had a hernia on the right side as long as he remembered, and that he was always able to reduce it until two weeks previous to his admission into hospital. He stated that when it was reduced there was a great thickness of the scrotal coverings remaining, which was not so on the left side, and that the testicle was always much smaller on the affected side. The symptoms of strangulation, however, did not appear until the day before his admission. There were frequent vomiting, hiccup, and constipation; great pain and tenderness over the lower part of the abdomen, which were especially acute in the situation of the external ring.

On examination a large scrotal tumour was found, of great weight, the upper half of which was tympanitic on percussion, the

lower half absolutely dull. There was great tension of the skin over the tumour, which was somewhat lobulated and irregular on the surface. There was *little or no impulse on coughing*, and on moving the tumour suddenly from side to side, or from before backwards, a loud splashing sound could be distinctly heard, like that of hydro-pneumo-thorax, indicating the admixture of air and water within the tumour. On examining it with reference to transparency, none whatever could be found.

Shortly after his admission he was put under the influence of chloroform, and the *taxis* was carefully tried, and though I failed to reduce the hernia, I succeeded in diminishing the size of it somewhat. At all events—and this is a remarkable circumstance—some of the symptoms of strangulation, viz., the vomiting and retching, *subsided after the taxis*. In the evening, at 8 p.m., the scrotum became again very much distended, causing much pain from the tension, and there was also retching and hiccough. These symptoms, however, under the influence of anodynes, enemata, hot fomentations, and the warm bath, towards morning completely subsided. The same state of things recurred next day.

June 12th.—The bowels were moved slightly on the 11th; pulse quiet; patient able to take light food, and very little tenderness about the abdomen or scrotum.

June 13th.—The symptoms of strangulation recurred with great violence. I got the following message from Mr. Ross, my able resident clinical clerk:—"The patient with hernia has been very ill during the night; vomiting set in at 2 a.m., and has continued at frequent intervals since then. He is perspiring profusely." On my arrival I found that the alarming symptoms the patient had during the night and early morning had greatly subsided. He was in a state of great prostration, perspiring profusely, but the vomiting had stopped—the constipation, which had now lasted since the morning of the 11th, continuing. The tenderness and pain over the abdomen and scrotum had also to a great extent subsided. The pulse was 76, and very weak. At this juncture my colleagues, Mr. Adams and Mr. Hamilton, kindly saw the case with me, and were of opinion that although the patient's symptoms were decidedly alarming, and the prognosis unfavourable, yet that, under existing circumstances, the symptoms of strangulation having to a great extent subsided, immediate operation was not called for. It was then determined that a consultation should be held at 5 30 p.m., the patient to have in the meantime a full enema and morphia.

and hydrocyanic acid internally. At the time of the consultation the patient was found considerably better. He had only had during the day two slight attacks of retching. The tumour was not nearly so tense, and the tenderness in the abdomen greatly better. He was still in a very weak and exhausted condition. I then considered it would be better again to defer any operative interference, and accordingly it was agreed to meet again to see the patient at 10.30 p.m. At this hour, the symptoms of strangulation having again supervened, and with greater intensity than at any time previously, I determined upon performing the operation for strangulated hernia. On making the usual incisions over the external abdominal ring, and dividing layer after layer of fascia down to the sac of the hernia, I found that there was not, as I had at one time supposed there might be, a hydrocele of the hernial sac, but that the enormous scrotal tumour was composed of a mass of intestines, within which was the fluid and air which gave the succussion sounds so unusual in hernial tumours.

On arriving at the peritoneal sac, I passed my finger upwards to feel for the constriction which caused the strangulation, and found that it occurred at the external abdominal ring, and that it was caused, not by a narrow cord-like constriction, but by one which was broad, flat, and riband-like. I was very anxious in this operation to reduce the hernial tumour without opening the peritoneal sac, in consequence of the large size of the tumour, and the recent and intermittent strangulation of the intestine. However, in passing my finger up to the constriction, I must have pushed a portion of the sac before it, for a quantity of fluid came welling up from the bottom of the wound the very moment the stricture was divided. After this a good view was obtained of the intestines. They were found considerably congested at the seat of the stricture, but everywhere else they appeared quite normal and healthy. Fully three feet, or perhaps more, of small intestines were in the scrotal tumour, and the reduction of this vast coil of intestines was not accomplished without very great difficulty.

After the operation the patient got a powerful anodyne draught, and one grain of opium every third hour during the night. Also strong beef-tea iced.

14th.—He slept very well during the night, and at 8 a.m., this morning, his bowels were moved. He took some milk and egg this morning. Pulse 112. As the day advanced the pulse became full and bounding, and rose to 120 in the evening. Very violent

spasms in the abdomen set in. When each spasm subsided, Mr. Ross could hear a loud gurgling noise, after which the patient expressed himself much relieved. There was great tenderness and pain in abdomen, especially above the right groin. The patient was put on calomel and opium, and twelve leeches were applied to the right side of abdomen. After the application of the leeches, the bleeding was encouraged for some hours by hot fomentations.

15th.—Pulse 112, compressible. There is persistent vomiting, but scarcely so much tenderness over the right side of abdomen. The right testicle is highly inflamed. The patient's countenance wears an anxious expression. He is in a state of great prostration, and lies with his legs stretched at full length. The abdomen is tympanitic and very tender. He passes urine freely, it is high coloured; bowels not moved since yesterday. I ordered the calomel to be stopped, but a grain of opium to be given every third hour, and strong mercurial ointment to be rubbed into the axillæ, and smeared on a large linseed-meal poultice to be applied to the abdomen. Twelve more leeches to be applied to the abdomen.

16th.—The spasms have diminished in frequency and intensity, and the patient slept pretty well during the night. The tenderness in the abdomen is somewhat diminished, but it is distended to a great extent. He frequently passes flatus, but bowels not moved since the 14th. There is great thirst, the tongue is now red, but moist. Pulse 100. The gums are slightly touched by the mercury. Although he has taken a grain of opium every third hour since the operation, it has not had any effect, except making him drowsy and taking away his appetite. The pupils are not contracted.

17th.—Pulse 90. Patient had a slight attack of syncope at 7 o'clock this morning. The distension of the abdomen is considerably less than it was yesterday, but there is a good deal of tenderness still. There is less vomiting now, and his appetite is returning. He took a little calf-foot jelly and iced brandy this morning. Last night prussic acid was given to allay the vomiting, and it proved very efficacious. The mercurial inunction was ordered to be stopped. Opium reduced to half a grain every third hour. Six leeches to be applied to the abdomen, close to the wound.

18th.—The anxious expression of the face is almost gone, and he has had very few spasms during the night. He is able to take light food to-day. His bowels still not moved, but a great deal of

fatus came away. There is very little thirst. The testicle not so painful, but still enlarged. Pulse 90.

19th.—Expression of face greatly improved. Abdomen now free from tenderness. Bowels were moved four times to-day, the evacuations being pretty solid. Pulse 86. Opium to be stopped.

20th.—Still progressing very favourably, but enlargement of right testicle is undiminished. Bowels moved twice.

21st.—Improving rapidly. All medicines to be discontinued.

July 2nd.—Wound very nearly healed. Bowels perfectly regular. Appetite excellent. No trace of any abdominal pain or tenderness.

6th.—Returned home perfectly recovered.

The difficulty of diagnosis in this case as to whether, namely, it was one of simple strangulated congenital hernia, or whether the case was one of a small hernia into a large previously existing hydrocele of a hernial sac, arose from the existence of the following symptoms and appearances :—

1. The absence of all impulse in the tumour on coughing.
2. The intermittent symptoms of strangulation.
3. The great weight of the tumour.
4. The loud succussion sounds.
5. The absence of translucency in any part of the tumour.
6. The comparative freedom from pain in the vicinity of the ring.
7. Absence of all abdominal fulness.

Many of these symptoms and signs were characteristic of the rare form of hernial complication known as "Hydrocele of the hernial sac," which, as Mr. Fleming has remarked, occurs generally in adults with large, not fully reducible, scrotal herniæ, or the rarer variety named "Congenital inguinal hernia."

The chief difficulty, however, in determining the exact nature of the case, and, consequently, the line of treatment to adopt, arose from the intermittence of the symptoms of strangulation, and the loud succussion sounds.

In consequence of this unusual and extremely interesting case I may mention that other eminent surgeons, in addition to my colleagues, kindly assisted at the consultation held on this case, and witnessed the operation which was ultimately determined on. Among others, I may mention my friends, Mr. Porter, Dr. Wharton, Mr. Croly, and Mr. O'Grady.

**CASE II.—Strangulated Femoral Hernia of unusual form and size;
Operation without opening the Hernial Sac.**

Mary D., aged forty, was admitted into my wards in the Richmond Surgical Hospital on May 22, 1868, suffering from strangulated femoral hernia. The patient stated that she first observed a tumour, about the size of a marble, in the right groin about ten years previously. Two years before her admission it increased suddenly very much in size, which the patient attributed to a kick which she got a little below the umbilicus. She never experienced any difficulty in reducing the tumour until the day she sought for admission to the hospital. She stated that, while running after a coal cart, she felt a sudden pain in the groin, in the right side, the situation of the hernia, and on trying to reduce the latter, was unable to do so. Shortly after, the patient was brought into hospital suffering great pain, and vomiting frequently. A full opiate and a warm hip-bath were first given, and the taxis having been tried, and without success, I was sent for.

On examination, a very large hernial tumour was found in the right groin, oval in shape, and somewhat constricted in the centre, giving it an hour-glass appearance, and extending from about an inch and a quarter internal to the anterior superior spine of the ilium down into the labium. From the large size, the peculiar form, and the extension of the tumour down into the labium, it appeared at first sight, to be an inguinal hernia. On careful examination, however, the conclusion arrived at was, that it was a femoral hernia of most unusual form and dimensions. This opinion was found at the operation to be strictly correct.

The taxis was again tried, the patient having been brought fully under the influence of chloroform. The attempt, however, was unsuccessful. The patient was then given a second opiate, a tobacco enema, and kept in a warm bath for twenty minutes, and then a third and last attempt at reduction was thus tried, but, as before, was unsuccessful. I then performed the operation in the usual manner, the hernia having been strangulated nine hours and a half. Bearing in mind the short time the strangulation had lasted, I took care not to open the peritoneal sac. Carbolic acid dressings were applied to the wound. The day following, the patient complained of much pain in the lower part of the abdomen, accompanied with a frequent tendency to retching; but these unfavourable symptoms were effectually arrested by morphine,

hydrocyanic acid, and spirit of nutmeg in cinnamon water. On May 24th, the bowels not being yet moved, the patient got a full enema, which had the desired effect. On May 26th, the patient was free from all pain and uneasiness—bowels regular, appetite good, and wound healing rapidly. On June 4th, the wound being perfectly healed, the patient was enabled to return home.

CASE III.—*Strangulated Inguino-Scrotal Hernia; Duration of Strangulation, five days; Herniotomy.*

John W., aged twenty-one, was admitted into the Richmond Hospital on the 29th of June, 1869, having been recommended to me by Mr. Charles Gray. The patient stated that about twelve months ago, he got a fall from a horse, in consequence of which the right testicle was injured, and became very much inflamed and swelled. This, after a time, subsided, and then, shortly after this, the patient observed a small tumour in the scrotum, which he never could reduce fully, but, without doubt, to a certain extent. On the night of the 24th ult., without any assignable cause, the tumour became somewhat larger, and this was accompanied by an attack of vomiting. The following day, the vomiting having subsided, he was able to go to his employment, but on the evening of that day, the 25th, the tumour became larger and much more tense, and vomiting again set in; and the patient continued in this condition, vomiting at intervals, and with his bowels confined until the 29th, the day of his admission into hospital. Owing to the strangely contradictory statements the patient made, whose intellect, owing probably to his great suffering, was in a perfectly distracted condition, it was a matter of extreme difficulty to elicit even these few particulars of his case.

On the patient's admission into hospital a small tumour about the size of a hen's egg was found in the scrotum. In the situation of the cord, a little external to the external abdominal ring, the tenderness and pain were extreme. This was not the case in the scrotal tumour, which was free from tension, pain, and impulse on coughing. The tumour was somewhat pyriform in shape, and the scrotal portion of it felt not unlike a varicocele; this, as was subsequently ascertained, was caused by this portion of the tumour being made up of omentum. The epididymis could be distinctly felt, and the testicle easily isolated. On percussing the tumour, the sounds were absolutely dull, and there was no translucency. Since Thursday, the 25th ult., five days previous to his admission,

the bowels had not acted. His face was pale and anxious-looking, and he was perspiring profusely. The pulse was very weak, quick, and compressible, being 120; vomiting continued during the day. In the evening the bowel—probably the portion only below the strangulation—was cleared by an enema. There was considerable fulness, pain, and tympany over the abdomen.

Taking into consideration the *want of tension* in the tumour, the absence of impulse on coughing, the fulness, pain, and tension being localised solely in the cord, the question to determine was whether the case was one of strangulated inguino-scrotal hernia, or an omental hernia combined with acute inflammation in the cord. This condition, though very rare, has occasionally misled the most accurate observers. The practice I determined on was, in the first instance, to observe the effects of local depletion and stupor, &c., for a short time, and that then, should the symptoms of strangulation persist, to cut down in the situation of the external ring, and return the tumour should it prove hernial. Several leeches were applied, followed by hot stupor, and at 9 p.m., finding that the symptoms had not ameliorated, and that the patient was obviously becoming weaker, I determined on performing the ordinary operation for strangulated inguinal hernia.

On dividing, carefully, the structures in front of the tumour, the latter was found to be hernial, the greater proportion of which was found to consist of omentum, not by any means gangrenous, *but in an extreme state of congestion*. At the upper portion of the tumour, a small knuckle of intestine was found, and of a dark chocolate colour. The protruded intestine was completely surrounded by omentum. There was no difficulty, after dividing the stricture, in returning the intestine into the abdomen, but the reduction of the omental portion of the tumour was, owing to extensive adhesions, attended with very great difficulty. The hernial tumour, however, was, after some time, completely reduced. After the operation the patient got a powerful anodyne draught, containing opium, Hoffmann's anodyne, and hydrocyanic acid. During the night he slept for some hours; the pulse became stronger and fuller, but still compressible; his face lost its anxious look, and its colour improved.

June 30th.—The vomiting continues; there is scarcely so much pain over the abdomen; bowels not moved; pulse 120, stronger and better; he complains of much thirst, and perspires freely. He was then ordered one grain of calomel every hour, leeches to the

abdomen, mercurial inunction in the axilla and over the abdomen, and, internally, opium and iced brandy, with dilute hydrocyanic acid. As the day advanced he became very restless; the vomiting continued, the forehead was covered with large drops of perspiration, and the feet and hands grew clammy and cold; the great thirst remained throughout the day quite unrelieved. The pulse rose until, at midnight, it was over 150, and at two o'clock a.m., twenty-nine hours after the operation, the patient sank.

The autopsy revealed a state of things which would render recovery under such circumstances quite hopeless.

The intestines were very vascular from the extensive and violent peritoneal inflammation, and lymph was extensively thrown out all over them, in fact, glueing them all firmly together. They were also greatly inflated above the seat of the stricture. The omentum was carried down in a strong band, and had contracted adhesions with the sac in the scrotum. The portion of the small intestine about the constriction, which was near the ileo-caecal valve, was approaching a state of gangrene, and the portion of intestine below this was contracted.

CASE IV.—*Strangulated Femoral Hernia ; Herniotomy.*

Thomas B., aged twenty-four, by occupation a clerk, was admitted into the Richmond Hospital, under my care, on February 21st, 1869, having been recommended by Dr. Gogarty. The patient stated that he had been ruptured for five years, but up to August, 1868, he never suffered any inconvenience, having always been able to reduce it without difficulty. On August 23, 1868, the hernia came down and became strangulated, and shortly after he was sent to the Richmond Hospital. The patient having been brought fully under the influence of chloroform, I succeeded in reducing the hernia without much difficulty. After this the patient wore a well-fitting truss, and suffered no inconvenience until the morning of the 21st February, when, during a violent fit of coughing, the hernia came down and again became strangulated. When admitted into hospital the second time he had all the usual signs and symptoms of strangulation—vomiting, hiccough, eructations, pain in the groin, tenderness in the abdomen, a small, quick pulse, and great anxiety and depression. As I had formerly succeeded in reducing the hernia, and as the strangulation was only of six hours duration, I anticipated little difficulty in reducing it by the taxis a second time. My anticipations, however, were not to be realised. Taxis

was tried with great care, but without producing the slightest effect on the tumour. Directions were then given to put the patient into a warm bath, to give a full opiate, and an hour subsequently to use a tobacco enema, and stupe over the abdomen. This treatment had the effect of relieving the pain to a great extent, but none whatever in diminishing the tension of the tumour. I may mention, also, that the taxis was tried while the patient was in the hot bath by my clinical clerk, but without success. No effort was, therefore, spared to save the patient the risk of the operation of herniotomy. At five o'clock p.m., I saw the patient again, and as the hernial tumour was as tense as before, and the pain recurred, and all the other symptoms had increased in intensity, I determined to operate without further delay. As the strangulation was so recent, I determined, if possible, to perform the extra-peritoneal operation, though I had some doubts as to my being able to do so from the fact that in this case the hernia was strangulated in an old previously unreduced hernial sac. This constituted the chief peculiarity of this case. The difficulty in reducing the hernia without opening the sac in this case arose from the existence of extensive adhesions between the thickened unreduced hernial sac and the edges of the femoral ring. This I found when I arrived at the sac; I passed my finger all round its neck and nowhere could I feel the edge of the ring. I then forcibly introduced a broad-bladed director between the sac and the ring at the upper and inner margin of this ring into the abdomen, breaking down the adhesions that had formed in this situation. The stricture was then divided in the ordinary way, and the intestine, but not the sac, returned. The operation being completed, he got a powerful anodyne draught, after which he fell asleep. The following day he got another opiate. The third day all pain and tenderness having subsided, and the patient feeling inclined to sleep, opium was not considered any longer necessary. I need not enter into the particulars of the daily progress of this case. But this fact is worth mentioning, *that there was no motion from the bowels until the seventh day after the operation*, which motion was induced, not by the administration of any purgative, but by a simple warm water enema. After this the patient had one motion from the bowels regularly every day. I may mention also that the wound healed by the first intention, and the patient was enabled to leave the hospital on the twelfth day after the operation.

CASE V.—*Strangulated Femoral Hernia; Intestines Strangulated within a sac formed of Omentum; Duration of Symptoms of Strangulation, twelve days; Herniotomy.*

(From Notes taken by Mr. William Ovenden.)

Jane Brogan, aged seventy, was admitted into the Richmond Hospital, under my care, on February 11th, 1871, suffering from obstinate constipation, vomiting, and great abdominal pain, which symptoms lasted for twelve days. On examination I found a small, hard, and somewhat globular tumour occupying the situation of the left femoral ring. The tumour was *not painful* to the touch. The patient stated that about ten years previous to her admission, while walking along the street, she was knocked down by a boy, and that immediately after this she observed the tumour. It did not then give her any annoyance, nor did it from that time to date of her admission into hospital. On examining the tumour it was not found to be painful, but the situation, when she chiefly complained of pain, was in the *immediate vicinity of the umbilicus*. She suffered also from great thirst and head-ache, and vomited at intervals of about twenty minutes a greenish-yellow matter, which had some of the characters of the so-called stercoraceous vomiting. The abdomen was hard, swollen, and tympanitic. The *taxis* having failed, a consultation was held, and it was determined to perform the operation for strangulated hernia. I made the usual incisions, and came down on what appeared to be an omental tumour, and passed my finger round the upper portion of the tumour to feel for the constriction. I felt it, and then divided the constriction external to the omentum so freely as to enable me to pass my finger into the abdomen. Still I could not succeed in reducing the hernia. I then made a division of the omentum, and found that there was a second constriction between the intestine and the omentum. This I divided, and then succeeded in reducing the hernia. I had thus a double constriction to deal with—one occurring external to the omentum by adhesions to the parietes of the abdomen, and the other between the intestine and the omentum. The edges of the wound were brought together with wire sutures, and dressed with water dressings. The patient then got a full opiate. The vomiting ceased, and there was an immediate cessation of the abdominal pain. The pulse came down from 112 to 104, and was much fuller and stronger.

February 15.—Her bowels were not moved since the operation. An enema was then administered, after which she had two ample motions. From this time the case went on very well. Nothing untoward occurred, with the exception of the formation of a small faecal fistula. This never completely closed. For several weeks the patient went on very well. Her bowels were regular, she took her food with relish, and was quite free from all pain. She then, however, began to show signs of great debility and exhaustion, which was not to be wondered at, considering her age and delicate physique; and then these symptoms of exhaustion increasing, she gradually sank, and died six weeks after the operation was performed.

CASE VI.—*Strangulated Inguino-Scrotal Hernia; Herniotomy.*

John A., aged sixty-eight, was admitted into the Richmond Surgical Hospital, under my care, on the 19th January, 1872, suffering from strangulated hernia, having been recommended by Dr. Torney. On examination, I found a very large inguino-scrotal hernia in the left side. It was very tense and painful to the touch. The integuments over the tumour had a dark livid colour. The patient had hiccough, frequent vomiting, his tongue brown and dry, and pulse quick and intermittent. The patient stated that it was eighteen years since the tumour first appeared, since which time he had during the day constantly worn a truss, but always took it off when he went home to bed. At times he stated he had difficulty in reducing the tumour, but it never had been strangulated until the day previous to his admission into hospital. He was then in a state of extreme prostration, his pulse could hardly be felt, and his face was covered with a cold sweat. From his condition generally, I formed a most unfavourable opinion of the case, and determined that no effort should be spared to return the hernia without a cutting operation. The taxis was tried immediately after his admission again in a warm bath, then after the application of ice to the tumour, and finally when the patient had been brought fully under the influence of chloroform. These attempts all proved unavailing, and accordingly after a consultation, in which Mr. Adams, Mr. Hamilton, and the late Professor Smith took part, it was determined unanimously that herniotomy should be performed at once, though all were of opinion that the chances of the operation terminating successfully were very slender. I accordingly performed the operation, and found the protruded intestine deeply

congested. There were no adhesions, and the operation was accomplished without difficulty. During its performance the patient got very weak, almost pulseless, and his state was, in truth, so critical, that at one time I thought he would die on the operating table. However, the free exhibition of brandy and ammonia raised him, and he rallied well after the operation. This improvement was, however, unfortunately only temporary, and he died about eight hours after the operation. This result I looked to as almost a certainty when I took into account the patient's age and extreme prostration. The result of the autopsy was negative.

CASE VII.—*Strangulated Femoral Hernia of enormous size; Treatment by Enemata and Warm Baths, &c.*

Eliza H., aged forty, was admitted into the Richmond Hospital, under my care, on May 1st, 1871, having been recommended by Dr. Torney. She stated that ever since the birth of her first child, thirteen years ago, she noticed a small lump in her left groin. This tumour never caused her any pain or inconvenience until about two years ago, when it began to increase sensibly in size. However, it was always reducible, for the patient stated that when she awoke in the morning she found always that it had gone back, but when she rose it came down again. Four days previous to her admission the tumour became enormously increased in size, very painful and hard, and the patient suffered also from retching. She applied to Dr. Torney, who put her under the influence of chloroform, and succeeded in reducing the hernia. He then recommended her to wear a truss. Neglecting this judicious advice, the patient soon suffered again from a strangulated condition of the hernia, and this time the tumour was so large, so hard, and so painful, and all the constitutional signs of strangulation were so well marked, that the patient was at once recommended to come to the Richmond Hospital. Her condition, when admitted, was one of extreme prostration; there was continual vomiting of greenish matter in large quantities; great pain over the tumour and abdomen; the knees were drawn up; the pulse was feeble, and her general state one of great exhaustion. The hernia was of enormous size—an important feature in this case, as large femoral herniæ in females are so rare. I have never before or since seen so large a femoral hernia as was presented by this patient. The tumour was fully the size of an infant's head. I determined to have recourse to every expedient rather than lay open such a large tumour, and expose so great a

surface of peritoneum; and, although the symptoms were of such extreme urgency as would have induced many surgeons to operate early in such a case, it was thought better to defer operative proceedings until the effect of injections and warm baths had been tried. Purgative enemata and warm baths were given, and the taxis was tried in bed, the patient being put under the influence of chloroform, but without success. The next morning, however, I was glad to learn that the patient had had a motion from her bowels. This made me determine to continue the enemata, and also to follow the advice given by Sir Astley Cooper of giving purgatives by the mouth. Senna and sulphate of magnesia were given as purgative enemata, and also the red mixture of the hospital by the mouth. The moment she took the latter the vomiting completely ceased, and that day she had two more motions from the bowels. On the following day the tumour was quite soft and flaccid; all the pain had completely subsided, and the patient's countenance had lost the anxious expression she had at first. The bowels were now perfectly regular, and the tumour greatly reduced in size. Shortly after this the patient returned home perfectly well. The particulars of the foregoing case showed that surgeons should not, in all cases, absolutely follow the rule of Mr. Hey—of early operation in strangulated hernia. It showed that, even when the symptoms of strangulation were extremely urgent, there were cases in which they were justified in deferring operation until less hazardous means had been had recourse to.

CASE VIII.—*Obscure Case of Inguino-Scrotal Hernia, with Symptoms of Strangulation; Herniotomy.*

The following is one of the most interesting and instructive cases I have ever met with:—

J. P., aged thirty-two, was admitted into the Richmond Surgical Hospital, under my care, in the early part of April, 1873, with many of the symptoms of strangulated hernia. On the Thursday prior to the date of his admission, while punching a hole in an iron plate (he was a smith by occupation), he felt a sudden pain in the abdomen, which obliged him to desist from his work. After that he was attacked by vomiting, the pain in the abdomen still continuing; and, the symptoms getting more urgent, he came to hospital. Shortly after the patient's admission I saw him, and found him vomiting continually, and suffering intense pain in the

abdomen. On examination I found an inguino-scrotal hernia, which, however, wanted many of the characteristics distinctive of strangulated hernia. The tumour was quite flaccid, free from tension, pain, or tenderness, and there was apparently no undue constriction at the ring, as on passing the finger up to the ring it could be passed into the abdomen. Other symptoms were peculiar about the case, for, in addition to the flaccidity of the tumour and its apparent freedom from constriction at the ring, it was not of the ordinary shape that characterised such tumours—it was much more like hydrocele of the cord than hernia. The pulse being quiet, I thought it would be more desirable to defer all operative procedures until the following day, in order that I might see whether aperients would have an effect on the bowels, which had been constipated since the Thursday prior to admission. The next day I found the patient's condition unchanged, and I again made attempts, as did also my colleague, the late Dr. R. W. Smith, to reduce the tumour. All these efforts were, however, unavailing, and I then formed the opinion, in which my colleague coincided, that the tumour was an old omental hernia, behind which possibly a knuckle of intestine had become strangulated. I then determined to perform the operation for strangulated hernia. I accordingly did so, and found that the opinion I had formed was partly correct, for the tumour was found to be an old irreducible omental hernia. No intestinal strangulation was found in the vicinity of the ring. The omental tumour, too, could not be reduced even after the division of the ring, owing to the extensive and firm adhesions that connected it with the adjacent tissues.

Under these circumstances I gave up all further attempts to reduce the tumour, and the patient was put to bed. However, the operation was not attended with any remission of the symptoms. Vomiting and constipation continued, as well as pain in the abdomen; in fact, everything the patient took into his stomach was immediately rejected. In that state he remained until next morning; the pulse then suddenly became much weaker, and he sank and died about half-past two o'clock. The autopsy showed that the tumour was entirely omental. In the situation of the ring the gut was apparently in a normal state. Much higher up I found the chief abnormal conditions. At the duodenum I found extensive evidence of inflammation. At the junction of the jejunum and the ileum there was a sudden cessation of the inflammatory appearances, which terminated in a tumour at that point,

the intestine being much smaller immediately below, and correspondingly dilated above it. The only cause for the constriction appeared to be a number of peritoneal bands which surrounded it. There were several chord-like bands crossing the intestines at different situations, and one of them constricted the gut at the junction of the jejunum and ileum. This, therefore, was a case which could not have been cured by any operative interference. At the same time it would have been quite unjustifiable not to perform the operation, in the hope that the strangulation might have occurred at the situation of the ring.

CASE IX.—*Symptoms of Strangulated Hernia in a case of Glandular Inflammation.*

The following case, like the preceding, is strikingly illustrative of the great difficulties that at times attend the diagnosis of strangulated hernia:—

Jane L., aged thirty-five, was admitted into the Richmond Hospital, under my care, on April 20th, 1871, suffering from the usual symptoms of strangulated hernia. She stated that three days before her admission she received a kick in the groin, and that it was followed the next day by a tumour which was somewhat larger at the time of her admission than when she first observed it. All the symptoms of strangulated hernia were present. There was constipation, continual vomiting and retching, great irritability of the stomach and abdominal tenderness, and in the situation of the femoral ring there was a painful globular tumour which had all the external appearance of a femoral hernia. In truth, at first sight, no one would have questioned that such was the nature of the case, especially when the symptoms that accompanied it were considered. The only thing that made us entertain any doubts as to the nature of the case was the history the woman gave—namely, that it came on after the injury she described. As a proof of the extreme difficulty of diagnosis in this case, I may mention that my late eminent colleague, Professor R. W. Smith—universally and justly acknowledged to be a great master in surgical diagnosis—was of opinion that it was a strangulated hernia. Accordingly, I determined to cut down on the tumour, and, if it proved to be a strangulated hernia, to deal with it in the ordinary way. I made the usual incisions, and in a short time came down on what was nothing more or less than a large glandular tumour in a state of great

inflammation. I then determined to excise the tumour. This being done without any difficulty, the symptoms of strangulated hernia, strange to say, immediately subsided. The wound healed promptly, and in a few days the patient returned home perfectly well.

This case must, I think, be considered of great surgical interest and importance, and shows that the symptoms of strangulated hernia may be produced by other conditions unconnected with hernia. The only analogous cases that I am aware have been observed, were one that occurred in the practice of Dr. Jameson, formerly surgeon to Mercer's Hospital, and one that Professor Hargrave has informed me was treated by the late Dr. Geoghegan in the City of Dublin Hospital. The following is the account of the former of these cases given by Dr. Jameson at the meeting of the Surgical Society of Ireland, held on May 5, 1871, the occasion on which I brought under the notice of the Society the particulars of the case I have just detailed. He observed that the patient was an elderly woman, a nurse in Mercer's Hospital. She was seized with symptoms of strangulated hernia, and, on examination, a tumour was found in the groin in the femoral region. Various means were tried unsuccessfully to reduce the tumour, and it was decided on consultation that he should cut down on the tumour and relieve the hernia. He performed the operation in the usual way, and cut down upon the tumour, which, when covered by integument, was about the size of a walnut. He dissected it very carefully, and opened, as he thought, a sac, but it was merely some of the fascia. When he came down on the tumour, he thought it did not look like hernia, and he cut very cautiously into it, cutting fully above a quarter of an inch into the tumour; it was solid, and he then turned it up and dissected round the back of it, and was very near dissecting it out. They concluded that this was an inflamed gland, and that the symptoms of strangulation were caused by some internal constriction. The case went on from bad to worse, and the woman died. On making a *post-mortem* examination, they found that there was a knuckle of intestine, about the size of a hazel nut, enclosed in the gland, and the incision which he had made was not more than the thickness of a shilling from the gut, which was in a gangrenous state.

Dr. Geoghegan's case also occurred in a woman, who was admitted into hospital with "most urgent symptoms of strangulated hernia." Professor Hargrave states that, on consultation, it was determined

to operate. Dr. Geoghegan "came down upon a small tumour that was just outside the femoral ring. He freed the stricture, but the tumour could not be returned. He then laid it open, and it was found that it contained but a very small quantity of serum, and that it communicated with the cavity of the abdomen by a small opening." The case, ultimately, did remarkably well.

The practical lesson to be learnt from the consideration of these three cases is that, under similar circumstances, the surgeon should proceed as if he had to deal with a case of strangulated hernia; and should he find the tumour apparently not hernial, he should hesitate to remove it, until he had first opened it and seen whether the condition observed by Dr. Jameson in his interesting case of a knuckle of intestine, strangulated in the interior of the tumour, did not exist. Where this condition is not observed, it has yet to be explained how it is that the symptoms of strangulated hernia are, in such cases, induced.

CASE X.—Strangulated Inguino-Scrotal Hernia; Double Stricture; Herniotomy.

W. B., aged seventy-six, was admitted into the Richmond Hospital, under my care, in the early part of March, 1872, suffering from a large inguino-scrotal hernia, which had been strangulated five days previous to his admission into hospital. He was suffering greatly and in an extreme state of exhaustion. Shortly after his admission a consultation was held; and, although a most unfavourable prognosis was given, in consequence of the great age of the patient, the size of the tumour, and the length of time the hernia was strangulated, still all were unanimously of opinion that the operation should be performed at once, as giving the patient the only chance, though necessarily a slender one, of recovery. Accordingly, I performed the ordinary operation for strangulated hernia. After a free division of the stricture, I opened the sac—a practice I invariably adopt when the strangulation has existed for any length of time—but, even after a protracted attempt, failed to return the hernia. My colleagues also failed to reduce it, although the finger could be introduced freely into the abdomen. I could not explain how it was that there was such a difficulty about the reduction of the hernia until, bearing in mind the possible occurrence of a second stricture, I passed my finger in as far as it could go, and

found that, just at its extremity, there was another stricture. I then passed the hernia knife up to the hilt, far up into the abdomen, and succeeded at last in dividing the stricture, and returning the hernial tumour. The hernia had, as before mentioned, been strangulated for five days, and the intestine, though not gangrenous, was much inflamed. The case was, in truth, from the first, a hopeless one; and the patient, about six hours after the operation, sank and died. Unfortunately, no autopsy could be obtained, so I was unable to determine what was the exact nature of the second stricture. I may mention, in connexion with this topic, that, during a discussion on the subject of hernia, at the Surgical Society of Ireland (March, 1872), which followed a valuable communication by Mr. Croly, I mentioned the occasional occurrence of deep-seated double strictures, such as I found in the case just recorded. The following opinions, given as to their possible nature, on that occasion, will, doubtless, be considered with much interest:—

1. Isolated portions of contents of hernial sac (C. Fleming).
2. Bands of lymph (J. Wharton and R. Macnamara).
3. Fascia Transversalis, assisted by edges of internal oblique and transversalis (B. W. Richardson).
4. Strong glistening fibres connected with fascia transversalis and lying in front of it (E. Hamilton, V.P.).
5. In femoral hernia, reflected tendons of internal oblique and transversalis (H. G. Croly).

Deep strictures in connexion with strangulated hernia are not merely interesting in a theoretic point of view. It is of the utmost practical importance to bear their possible existence in mind, and every operator, after the division of the ring, should seek, if he experiences difficulty in reducing the hernia, to determine if one or more be present, as any prolonged efforts at reduction must, of necessity, increase the risk to the patient's life.

In my next communication on hernia, I purpose adducing facts bearing mainly on the doctrine of Hey of Leeds in reference to the alleged importance of operating early in cases of strangulated hernia.

ART. VIII.—*Surgical Reports and Observations.* By ANTHONY H. CORLEY, M.D., F.R.C.S.I.; Lecturer, Carmichael School of Medicine; Surgeon to Jervis-street Hospital.

I.—TWO CASES OF LITHOTOMY—A CONTRAST.

II.—SCALD OF THE GLOTTIS.

III.—DISLOCATION OF BOTH CLAVICLES.

I.—*Two Cases of Lithotomy—a Contrast.*

John K., aged sixty-nine, was admitted into Jervis-street Hospital, March 5, 1869, presenting most of the rational symptoms of stone in the bladder. He had been recently discharged from another hospital, where he had been under treatment, and where lithotrity had been several times performed by one of the most accomplished manipulators in this city. At the last two or three sittings the bladder had shown such signs of irritability that the operation had to be discontinued, and for some reason or other he left the institution while yet there remained evidence of the presence of a portion of a calculus. When he came under my treatment the same irritability of bladder existed, and it was with difficulty I could even use a sound. A careful exploration of the bladder made manifest a stone, which, from the difficulty of detecting, seemed small, and from the deficiency of resonance on contact of the instrument was obviously soft. As the symptoms of vesical irritation and inflammation were very urgent, and the patient's general condition proportionately affected, prompt interference became necessary. I wished to "build up" the patient a little by tonics and sedatives, but after about a fortnight's trial the inutility of any treatment, other than the removal of the cause of the disease, became apparent.

Accordingly, on the 20th of March I proceeded to perform median lithotomy by Mr. Allerton's method, and with some trouble I was able to extract a small soft phosphatic stone, weighing something over a drachm and a half, and measuring nearly an inch in its longest diameter. As was to be expected, there was a considerable amount of débris, which was removed partly with the scoop and partly by washing out the bladder. From reasons which I shall presently mention, there was great difficulty in the operation, and had it not been for the able assistance of my colleagues the result might not have been so

satisfactory. To one of these in especial my thanks are due, Mr. R. Persse White, now Surgeon to the Meath Hospital, for whose able advice and help I was on this, as on many other occasions, much indebted. The principal difficulty was that the patient had chronic rheumatic arthritis of the right hip, which was in consequence partially ankylosed, and could not be flexed more than to an angle of about forty-five degrees with the operating-table. In addition to this he had met with an accident the day of his admission. The stick which he was accustomed to use in walking had slipped and he fell, fracturing his left humerus about the upper third. The operation was, therefore, performed under considerable disadvantages. Nevertheless the patient made an excellent recovery, and left the hospital about six weeks afterwards. Eight or ten months subsequently he paid the institution a visit, and had then no return of the symptoms of stone.

The points of interest in the foregoing case are—(a) the patient's advanced age, (b) the particular operation decided on, and (c) the difficulty of the operation. When it is remembered that at sixty-nine the average mortality after lithotomy is about one in three, age is a subject of the gravest importance in considering the treatment of calculus. I say of lithotomy in general, because there are not yet a sufficient number of cases of median lithotomy performed at such advanced ages to give weight to statistics of that particular operation, under such circumstances. Next, as to the mode of removing the stone in this instance. In the face of the records and comparative statistics of lithotomy and lithotripsy now available, no surgeon in his senses could hesitate in electing to crush in such a case, *provided there were no special contra-indications* to that procedure. The fact that my patient had already been in the hands of a skilled lithotritist, and that his bladder would not bear the use of an instrument, placed in his case lithotripsy out of consideration altogether. The only question then to decide was the particular way in which he should be cut. I had little doubt at the time, and recent statistics, especially those of American surgeons, have abundantly confirmed my opinion that *in suitable cases* Allarton's modification of the old Marian operation is easier to be performed, and gives better results than the lateral method. I still hold the same view, notwithstanding the recent promulgation of a directly contrary doctrine by no less an authority than Mr. Bryant. The supposed small size of the stone and stiffness of the hip had an important influence on my decision. Although not a recent case,

I publish it now for the first time, for the purpose of contrasting it with the next, and of showing how an operation done under the most disadvantageous circumstances had a favourable result, whilst in another case, with every reason to anticipate a successful termination, death resulted.

T. T., a young gentleman, aged twenty-five, consulted me in November, 1873. The symptoms he described were so plainly those of stone that his cousin, an intelligent medical student, suspected the nature of his case, and sent him to me. I mention these particulars as remarkable, for on sounding him myself I at once detected what I considered a very large stone; yet, though he had had the symptoms for years, and had been under many different surgeons, the presence of stone had been never suspected. Nay, further, he was in the habit of getting most characteristic "fits of the stone," and at one time while in America he had been treated for ague, and largely dosed with quinine. As I believed the stone was very large and hard, as he had much irritability of bladder, which did not yield to treatment, and as he *seemed* otherwise in good health, I made up my mind that lithotomy was the operation indicated, and the lateral method of performing it the most suitable.

On the 27th of November I proceeded to operate, assisted by Dr. Robert M'Donnell and my colleagues, Drs. Kane and Meldon. The operation presented no feature of interest until the stone was grasped, and here it became evident that it was of very large dimensions. The opening into the bladder was a tolerably free one; the forceps was introduced with facility, and there was no difficulty in grasping the stone, but its extraction was attended with much trouble. Several times the forceps slipped, and believing that force sufficient to extract would injure the vesical neck too much, I cautiously enlarged the incision with a Blizzard's knife. This proceeding I had to repeat, and then I was enabled to complete the operation. A very trifling amount of haemorrhage followed, but was easily controlled by the use of the catheter *en chemise*. The patient speedily recovered the effect of the shock of operation, and a daily record of his temperature, pulse, and general condition exhibited a gradual improvement, with the exception of two slight exacerbations—as marked by slight elevation of temperature and increased frequency of pulse—which took place on the 12th and 16th days respectively. On the 18th day his pulse was

84, and his temperature 99° F., and he seemed so well that a distinguished surgeon who saw him declared that "nothing short of an *earthquake* could prevent his recovery." The only doubtful feature in the case was that the wound, although healthy in appearance, showed no tendency to close. About the 23rd day a change took place. He complained of much abdominal pain, accompanied by *flatus* and straining, sometimes vomiting, and he began to refuse his food. There was no tenderness, nor any direct symptom of peritonitis. His condition now grew daily worse, but he seemed to suffer more from asthenia than from any distinct local affection, and on the 28th day after the operation he sank. I regret that the completeness of this history is spoiled by the want of a *post-mortem* examination, which his friends would not allow. I can only therefore conjecture that some unsuspected renal affection existed, which was aroused into activity after the operation, and was the cause of his death.

Remarks.—The stone was a large one, wanting only 52 grains of weighing half an ounce. It was oval in shape, and somewhat flattened, measuring $2\frac{1}{2}$ inches in its longest diameter, $1\frac{3}{4}$ inches transversely, and $1\frac{1}{2}$ inches in thickness. On making a section it had at first sight the appearance of an "alternating calculus," with a large "mulberry" nucleus. My colleague, Mr. Tichborne, was kind enough to make an analysis for me, and informed me that he found the stone to consist practically of two parts—a central oxalate of lime nucleus, and a circumferential thick covering of earthy phosphates. He remarked a point of some interest in the presence of fluorine, of which there were traces in the nucleus, and a well-marked quantity in the outer portion. The pathological significance of the presence of this element does not seem clear, but Dr. Tichborne believes it is the first time it has been recorded as existing in a urinary calculus. Another point of some interest was the complete absence of triple phosphate or of ammonia in any shape. One peculiarity of the patient during life may help to throw some light on the origin of the calculus—he had an inordinate fondness for sugar, which he had been accustomed to eat in enormous quantities for many years; and another remark as to the mental condition of the patient may be added, to afford some slight explanation of the fatal termination. Up to the day of the operation his spirits were remarkably good, but on that day he formed the opinion that there could be none other than a fatal result, and never altered it even when apparently almost convalescent. We are all aware of

the influence of a mental impression on the progress of a case, and it is not unlikely that much of the asthenic symptoms were thus produced.

II.—*Scald of the Glottis.*

As I happened to have seen two of the cases described in Dr. Bevan's able paper on this subject (*Dublin Quarterly Journal of Medical Science*, February, 1860), his arguments made a great impression on my mind, which have been deepened by the cases I have since seen. The treatment which he recommends, and the value of his paper, do not seem to have been sufficiently understood or appreciated by writers on surgery (if Mr. Croly be excepted, as that gentleman read an excellent paper on scald of the wind-pipe before the Surgical Society of Ireland), and I, therefore, venture to publish the following case, which speaks trumpet-tongued in favour of the views which my friend, Dr. Bevan, deserves the full credit of first submitting to the profession.

Laurence M., a very robust, healthy child, two years and ten months old, was admitted into Jervis-street Hospital at 2 30 o'clock a.m., September 18th, 1873. When admitted, he was extremely restless, continually tossing about; his respiration hurried, stridulous, and oppressed; his face dark and puffy; pulse 120. Four hours previously he had attempted to drink out of a kettle which contained boiling water, seemed scalded at the time, but soon recovered, and went to sleep quietly. About three hours afterwards he awoke with such difficulty of respiration that his mother deemed it proper to take him to hospital. Mr. Tully and Mr. Rattigan, to whose unceasing care and attention the successful result of this case must be, in a great measure, attributed, were on duty as resident pupils. Seeing the gravity of the case, they at once sent for me, as I was on accident duty, and I found the child becoming every moment more breathless. The spasms of dyspnoea were getting more frequent, and when they supervened, his face became absolutely purple in colour. Believing that the patient's safety depended on getting his system rapidly under the influence of mercury, I ordered a grain of calomel to be exhibited every hour, and half a drachm of strong mercurial ointment to be rubbed into the groins and axillæ at the same intervals. This, Dr. Bevan used to teach, was the *essential* part of the treatment; but, as my patient was unusually robust, and as the congestion of the face was excessive,

I ordered the application of six leeches, added one-sixteenth of a grain of tartar-emetic to each dose of calomel, and caused hot sponges to be constantly applied to the throat. I hoped thus not only to use rapidly antiphlogistic measures, but also to favour and hasten the action of the mercury. No important change took place till noon that day, except a gradual diminution in the frequency of the pulse, which induced me to omit the tartar-emetic, and to give the calomel at shorter intervals. The respiration then became so hurried that I sought the advice of Professor J. S. Hughes, the only one of my colleagues who happened to be in town at the time, and we had a consultation at 3 o'clock, as to the propriety of operative interference. Even in the short interval that had elapsed from the time I had seen him to Dr. Hughes' visit, a marked change for the worse had taken place. The respirations were more rapid, but fainter, and crepitating râles could be heard down to the bases of both lungs posteriorly, whilst percussion over the same parts elicited marked dulness. The question of operation was, therefore, completely out of consideration, and as the child's mother was clamorous for an opinion, we were obliged to tell her that we both considered the case hopeless, but that, whilst life remained, we would continue the treatment. I should have mentioned that, shortly after his admission, he had been removed to the Resident's room, where an equable and moist temperature was maintained. In just four hours afterwards, the *green stools appeared*; and, coincidentally, symptoms of slight improvement became manifest. The action of the mercury was kept up gently, and it is sufficient to say that on the 23rd of September the child was discharged recovered. The *active* treatment, which extended over seventeen hours, may be thus summed up:—24 grains of calomel, 6 drachms of mercurial ointment, $\frac{1}{2}$ of a grain of tartar-emetic, and the application of six leeches. The foregoing is, therefore, a case which, on consultation, was judged too far gone for operation, but recovered, when almost *in extremis*, under the persevering use of mercury.

III.—*Dislocation of both Clavicles.*

Patrick B., aged thirteen years, was admitted into Jervis-street Hospital on the 30th of January, 1874. He was a worker in a neighbouring printing establishment, and, a short time before his admission, his left hand was accidentally caught between the two cylinders of a printing press. His arm was rapidly drawn in nearly as far as the shoulder, and, just as his side and head struck against

the most projecting part of the cylinders, the machine was stopped. Another moment of motion, and the consequences can be imagined. On examination, the left arm was powerless, cold, dark, and contused from the wrist upwards; and towards the axilla, on the inner aspect of the arm, the subcutaneous tissues seemed to have been "rolled up" into a projecting transverse ridge, but there was no breach of surface, whilst the bones of the arm, forearm, and hand, were, strange to say, perfectly uninjured. He complained most of pain at the root of the acromion process of the scapula, posteriorly, and at that point there was considerable contusion and ecchymosis. By running the finger along the spine of the scapula a gap could be distinctly felt at the contused part, and by grasping and elevating the shoulders crepitus was elicited. There was much difficulty at first in ascertaining the exact position of the broken part of the acromion process, as, towards its clavicular end, nothing could be felt but a well-marked bony prominence, apparently continuous with the clavicle. On making a very careful examination, a dislocation at the acromio-clavicular articulation was detected, the end of the clavicle being dislocated upwards, or, to use the most orthodox surgical phraseology, the acromion was displaced *downwards*, and the bony projection was really the end of the clavicle. The condition of the limb gave me much uneasiness, as no pulse could be felt at the wrist, and no throb of any kind existed below the axillary artery. The most remarkable part of the accident remains to be described. On the other, the *right* side, there was a want of freedom of motion in the whole extremity, and the boy complained of pain about the sternoclavicular joint. On examination, the sternal end of the clavicle was discovered to have been dislocated *behind* the first bone of the sternum. It could be readily drawn out and replaced in its normal position, but would immediately slip back when left to itself. The bone had been driven *horizontally* backwards and inwards, but did not exercise any inconvenient pressure on the trachea or other important parts. It was at once evident that there would be a difficulty, if not an impossibility, in keeping the bone in its place, for the injured shoulder would not bear the pressure of a figure of ∞ bandage—the only means of keeping the deformity reduced, and, besides, after a day or two, the pain and tenderness wore off, and the boy seemed to think he had quite sufficient power in using the extremity. In about an hour after the accident, the injured arm, having been wrapped in cotton, became warm again, and,

although pulsation did not return, and was not felt in the radial artery till the fifth day, still the increase of temperature proved that, at least, collateral circulation was restored, and the danger of gangrene diminished. On the third day it was possible to apply a sling to keep the left elbow up, and a pad, placed over the end of the clavicle, tended, as much as possible under the circumstances, to restore the articulation to its normal condition. I am constrained to say that, when he left the hospital, after twenty-eight days' treatment, the *appearance*, both of that shoulder and the right sterno-clavicular articulation, would not bear, creditably, the survey of a critical eye; but, as to their functions, I can only say that about a fortnight after the boy's discharge from hospital, I saw him in the street sliding down the *wrong* side of a ladder, from a third storey window, in a manner that impressed me forcibly with the completeness of his recovery.

Cases of dislocation of the sternal end of the clavicle, backwards, are sufficiently rare to make the foregoing one worth recording; but, when complicated with the luxation on the other side, an apology is scarcely necessary for submitting it to the profession. It is difficult to understand how the dislocation backwards occurred. I can only conjecture that when the boy felt his *left* arm being drawn in, he swung round his right arm, and placed his hand against the revolving cylinder, and that a shock from it, the shoulder being well forward, was transmitted along all the bones of the upper extremity, and, as the result, the dislocation occurred.

ART. IX.—*Complicated Herpes Zoster.* By JOHN M'CREA, M.A.,
M.D., Medical Officer to the Belfast Dispensary.

THAT herpes zoster not only follows the course of nerves, but also is an organic disease of those nerves, appears to be indicated by numerous observations. My present object is to show that occasionally the herpetic nervous lesion is not the only one present.

To begin with the simplest case of this, there are often, even in the herpetic region, nerve fibres involved, of which the eruption gives no indication. Thus the neuralgia that followed intercostal herpes in an old man whom I saw was in a zone above the herpetic marks. In a case of superior cervical herpes in the acute stage, firm pressure on the herpetic side of the superior cervical spines

caused a pain in the occipital region, where there was no eruption; there had been acute pain (without pressure) in the same region before the appearance of the eruption. I had a patient with inferior intercostal herpes in the acute stage, in whom deep pressure at the spinal end of the herpes, or bending the body forward, produced a sharp pain in the epigastrium, on a higher level than the herpes. I saw an allied phenomenon lately in an affection of the brachial plexus, attended by erythema and numbness of portions of the upper extremity. Pressure above the clavicle caused a pain to dart into all the numb localities; in fact, the numbness and the pain were accurately conterminous. The eruption, however, was much more limited in extent. Why the eruption should occur in connexion with some of the affected nerve fibres, and not with others—whether the phenomenon be due to differences in their physiological functions, or whether it be due to different grades of disease in fibres of similar function—we have not materials to explain.

Some graver cases of nervous disease associated with herpes I have already recorded (*British Medical Journal*, May 24, 1873—"Idiopathic Neuritis"), and shall at present merely mention. These were lumbo-iliac herpes occurring in the course of syphilitic paraplegia, and disappearing before iodide of potassium, *pari passu* with the paraplegia; chorea, right intercostal herpes, and numbness of the right leg occurring at different periods in a girl; and cervico-brachial herpes, associated with paralysis of the arm of the same side. Following out this line of observation, I give the following brief notes of cases (one of them a fatal one) which I have seen more recently:—

I.—W. E., a boy, aged seven, the subject for years of otorrhœa and of occasional violent head-aches. On the day when first seen he was the subject of ophthalmic herpes of the left side. Before any eruption appeared he had suffered from head-ache, vomiting, and intolerance of light for nearly two days. There were three patches of herpes—namely, one on the temple, one above the middle of the eye-brow, and one at the inner end of the eye-brow, reaching down the side of the nose. The conjunctiva was much injected. There was copious purulent discharge from the left nostril, the right being quite normal. There was one distinct and well-formed pustule on the inner surface of the left cheek, opposite the upper molars; it was somewhat larger than the external vesicles.

The head-ache and vomiting were less than at first, but there was considerable fever. The otorrhœa, the old head-aches, the consideration of the situation of the Gasserian ganglion, and the symptoms actually present, led me to form an unfavourable prognosis. It struck me that abstraction of blood in the locality in which the nerve lesion had made its external burst might be a more direct attack on it than at first sight appeared. Accordingly, three leeches were applied between the inner and middle patches, and warm poultices, frequently renewed, were applied over the eye and eye-brow. The bowels were freely acted on. On the next day but one I found slight improvement. The leeching was repeated. After the second leeching there was rapid improvement of the eye, and the eruption died away. In five days from the appearance of the eruption the eye was out of danger. The herpes healed much more rapidly than I had been accustomed to see. There were left behind numerous scars and dilatation of the pupil. In the paper above referred to I have shown that a permanent lesion of sensory nerve fibres is a common result in ordinary herpes. In the dilatation of the pupil here mentioned we have another permanent lesion of a perhaps different class.

I saw lately a right ophthalmic herpes throwing out an extensive frontal and slight palpebral eruption, and two pustules on the tip of the nose. It was preceded and attended by an acute pain, aggravated by motion, and appearing to shoot in a postero-anterior direction along the side of the head. There was conjunctivitis. Three, four, and six leeches were applied to the forehead on successive days respectively. The forehead and palpebral region were assiduously poulticed. Atropine was dropped into the eye. I thought that the treatment had a marked effect both in relieving pain and in mitigating the cutaneous changes. The condition of the eye was stationary for three or four days, and then gradually improved.

Both these cases indicate that the affection of the nasal nerve is not always followed by destructive processes in the eye.

II.—S. S., a man, aged thirty-eight, a labourer. He was seen by me on February 28th of the present year. For some time he had shown signs of mental disturbance. Last autumn he became sleepless, and subject to maniacal excitement of a religious character. Bromide of potassium appeared to produce some improvement, but considerable fatuity was left behind. At the above

date I found him labouring under slight right hemiplegia and right lumbo-iliac zoster; this healed easily. Since then his mind has completely given way, and the loss of power increased. There was nothing special in his family or personal history.

III.—J. M., a boy, aged three, first seen March 25th, 1874. He had been observed for about a fortnight before to have a bad appetite. At the end of this time he had had diarrhoea for four days, with febrile symptoms, but he was so slightly ill that no medical advice was obtained. Herpes zoster had appeared on March 23. On March 25 I found a copious eruption on the left side, following the distribution of the cervical plexus. He disliked being moved. The febrile symptoms were very slight. There was nothing else noteworthy. The diarrhoea had ceased. I prescribed for him a mixture containing five minims of liquor arsenicalis in two ounces of peppermint water; one teaspoonful to be taken every three hours. March 27.—His mother reported that he was almost quite well, and that the vesicles had dried up. There being some tendency to constipation, I prescribed a simple mixture, containing magnesia. March 29.—He became dull and stupid. Bowels moderately moved. March 30.—At half-past seven a.m. he had a slight convolution. He vomited three or four times in the course of the day. He complained of no pain, but put his hand frequently to his head. At four o'clock he was seized with convulsions, which hardly had a pause till his death, between seven and eight p.m. There was no action of the bowels on this day. I have several times seen herpes of the same region, and quite as extensive, but never before any alarming symptoms. Had the rapid drying up of the eruption anything to do with the result? Or was it only a consequence of the central lesion passing into a stage different from that which produces and keeps up the acute stage of herpes?

Such cases as these show that herpes may have more extensive relationships than is commonly supposed. All these relationships are worthy of study, not only on account of their intrinsic importance, but because such an investigation may prepare us for the examination of the effects of neuroses on other organs. For instance, is there, as Allbutt suggests (see *M. C. Review*, Vol. xl ix., p. 124), a kind of phthisis which is a neurosis? Are pulmonary diseases at times dependent, as Brown-Séquard asserts, on cerebral lesions? The answers to these questions must materially influence treatment.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on Food and Dietetics, Physiologically and Therapeutically considered. By F. W. PAVY, M.D., F.R.S., Fell. Roy. Coll. Phys.; Physician to, and Lecturer on Physiology at, Guy's Hospital. London: J. & A. Churchill; and Simpkin, Marshall, & Co. 1874. 8vo. Pp. 559.

IT is seldom, indeed, that we have had the good fortune to read so admirable a book as this treatise by Dr. Pavy. A feeling of satisfaction is always left on the reader's mind when his author writes clearly, instructively, and as a master of his subject; and these three characteristics are found combined in the work before us.

Dr. Pavy tells us that he was led to write a separate treatise on "Food" from the great importance of the subject to the healthy and the sick, and because of the complete revolution in the cardinal scientific notions as to "food" which modern research and discovery have brought about. How well he has accomplished his task we shall endeavour to show in the sequel.

The scope of the work will best be gathered from a short analytical review of its contents. In the introductory chapters the Dynamic Relations of Food and its Origination are considered. Its constituent elements are enumerated. Dr. Pavy then proceeds to treat of Alimentary Principles: their classifications, chemical relations, digestion, assimilation, and physiological uses. Alimentary Principles, or the definite compounds arrived at by the analysis of the different organic products which nature affords us as food, are carefully distinguished from these products, or "alimentary substances," the consideration of which is taken up next in order. An admirable section on the "Preservation of Food" follows, and the remainder of the work deals with the "Principles of Dietetics," "Practical Dietetics," and "Therapeutic Dietetics."

In the chapter on Alimentary Principles, the author enters at length into the question of the *relation of nitrogenous matter to*

force-production. Having pointed out Liebig's theory as to the dependence of muscular and nervous action upon oxidation of the respective tissues, he states the argument in the following terms:—

"Does the force evolved by muscular action proceed from destruction of muscular tissue? If so, nitrogenous matter would be needed to replace the loss incurred, and the result would be equivalent to nitrogenous matter through the medium of muscle being applied to the production of motor power. Now, if muscular action is coincident with the destruction of muscular tissue, there must, as a product of the destruction, be a nitrogen-containing principle eliminated. The elements of the compounds that have served their purpose in the economy do not accumulate, but are discharged from the system under certain known forms of combination. The nitrogen, therefore, belonging to a consumed nitrogenous structure should be recognisable in the effete matters thrown off from the body. Nay, more; as the force developed by muscular action cannot arise spontaneously—as it can be produced only by transmutation from another force—the destruction of muscular tissue (which through the chemical action involved supplies the force) should be in proportion to the amount of muscular work performed, and the nitrogen contained in the excreta in proportion also to the amount of muscular tissue destroyed.

"Now, in proceeding to measure the extent of tissue metamorphosis by the nitrogen eliminated, it is necessary, in the first instance, to be sure of our data regarding the channels through which nitrogen finds its exit from the body—it is necessary, that is to say, to ascertain whether nitrogen escapes with the breath and perspiration, as was at one time asserted, as well as by the alimentary canal and the kidneys. We have no accessible means, it must be stated, of determining in a direct way whether nitrogen passes off by the lungs and skin. Our conclusions have to be based upon comparing the nitrogen ingested with that encountered in the urine and alvine evacuations. Formerly it was said that a deficiency in the latter existed, and it was put down to loss by pulmonary and cutaneous elimination. Barral, for instance, only detected half the nitrogen of the food in the urine and faeces, and thence inferred that the remainder was discharged with the breath and perspiration. In opposition to this, however, several trustworthy observers (amongst whom may be named Voit, Ranke, Haughton, and Parkes), aided by the improved methods of analysis introduced by modern experience, have recovered within a very close approach all the nitrogen of the food from the urinary and intestinal excreta. Dr. Parkes' observations are especially worthy of reliance, and he confidently asserts that it may be looked upon as established that an amount of nitrogen is discharged by the kidney and intestine equivalent to that which enters with the food. Admitting

this to be the case, we have only to look to the products that escape from these two channels for the information that is wanted about the discharged nitrogen in relation to the question before us."

Dr. Pavy then shows from the observations of Lehmann and Dr. Parkes (which he quotes) that the nitrogen discharged from the bowels forms only from an eighth to a twelfth or thirteenth of the total nitrogen voided, and that consequently the estimation of the urea excreted in the urine is a sufficiently accurate test of the nitrogen cast off from the body. Then follows an account of the celebrated experiments of Drs. Fick and Wislicenus, the Zürich professors, which overthrew the theory of the dependence of muscular work on destruction of muscular tissue by oxidation. Dr. Parkes' experiments in confirmation of the results obtained by the Swiss professors are also given—Dr. Pavy summing up in the following sentences:—

"Even Liebig^a has now come to assert that muscular action is not attended by the production of urea. He admits that the question as to the source of muscular power has been complicated by an inference which has proved erroneous, and for which he acknowledges himself as responsible—the inference, namely, that muscular work is represented by the metamorphosis of muscular tissue, and the formation of urea as a final product. While admitting this much, however, Liebig still looks to changes in the nitrogenous constituents of muscle as the source of muscular power."

"Suffice it here to reiterate that muscular action is not to be considered as the result of muscle-destruction, as was formerly supposed, and hence that nitrogenous matter is not applied through muscle—in the manner hitherto maintained—to the development of muscular force. Thus much, from the evidence before us, may be said, but, at the same time, common experience seems to show that a plentiful supply of nitrogenous matter in the food tends to increase the capacity for the performance of muscular work."

Dr. Pavy then deals with the metamorphosis of nitrogenous food into urea—which is eliminated as no longer of use in the animal economy, and a hydro-carbonaceous residue utilised in the production of force. The question whether this hydro-carbonaceous substance can be stored up in the system for use at a future time,

* Proceedings of the Royal Bavarian Academy of Sciences, 1869. Pharmaceutical Journal, 1870.

or whether it must be at once oxidised, gives the author an opportunity for displaying that impartiality in stating the sometimes conflicting opinions of writers which make this book a mine of information. He seeks not to advance his own views exclusively, but to place within the reach of his readers a full digest of the opinions of most modern authorities on the topics of which he speaks.

The same remark applies to the manner in which the question of the nutritive value of alcohol is treated (pp. 121-125). It is worth while quoting the sentence in which Dr. Pavvy comments on the evidence for and against alcohol as a food:—

“From a review of the evidence as it at present stands, it may reasonably be inferred that there is sufficient before us to justify the conclusion that the main portion of the alcohol ingested becomes destroyed within the system, and, if this be the case, it may be fairly assumed that the destruction is attended with oxidation and a corresponding liberation of force, unless, indeed, it should undergo metamorphosis into a principle to be temporarily retained, but nevertheless ultimately applied to force-production. The subject appears to me to be open to physiological as well as chemical investigation, and probably some additional light may be hereafter thrown upon it by an approach through the former channel.”

In the chapter on “Alimentary Substances,” the section on unwholesome meat will be read with interest by the numerous army of medical officers of health which has been called into existence by the Public Health Acts of 1872 (England), and of 1874 (Ireland). Another section on “Exceptional Animal Foods” is also most interesting. Particulars are given of the numbers of strange animals eaten in Paris during the siege in 1870-71; and the earth-eating, so prevalent in parts of Central America, is described.

The last feature in the book to which we shall call special attention is the chapter on Alcoholic Beverages, and more particularly to the section on “Wines.”

Dr. Pavvy writes:—

“On account of the free trade that has been opened out by the present duties on wines, a great variety now finds its way within the reach of persons of moderate means. These different wines possess very different characters and properties, and the medical practitioner is constantly

being called upon to advise as to which is most suitable for his patient. It is therefore necessary that he should be informed, as a part of his professional knowledge, upon the point—indeed, it is scarcely too much to say that for those who practise amongst the well-to-do classes, an acquaintance with the distinctive qualities of the various wines introduced for general use is as essential to his success as a knowledge of the properties of the several drugs."

The next thirty pages or so are devoted to a description of the process of making wine, and of the wines in every-day use, and those suitable for invalids.

Under the heading "Practical Dietetics," we find a section on the diet of infants, and another on that suitable for training. The former is of peculiar value at present, when the attention of the profession is being so much directed to the excessive mortality in early infancy, and to the lately demonstrated dependence of that mortality upon innutritious or unsuitable food. "Therapeutical dietetics" include an account of *Bantingism*, and a full dietary for the diabetic. The plan of treatment of internal aneurisms by position and diet, as recommended by Mr. Tufnell, President of the Royal College of Surgeons in Ireland, is subsequently mentioned. The chapter also contains receipts for various dietetic preparations for the sick-room, and a very complete list of hospital dietaries.

Such is but an inadequate account of a work which is sure to become a standard authority on the subject of which it treats, and which we have great pleasure in recommending to the attentive study of our readers.

The Muscles of the Human Body, grouped according to their Action, with their Vascular and Nervous Supply. By C. J. MANNING and F. H. ELLIOTT, M.R.C.S.E. London: H. K. Lewis. 1874. Pp. 38.

THE three-fold object announced in the title-page has been carried out in the briefest manner. Though manifestly intended for students, its use to them we consider more than doubtful. Such compilations are positively injurious to those for whom they are intended, being calculated to foster in their minds the idea that in this branch of anatomy a superficial knowledge merely of the principal action of certain muscles, with their arterial and nervous

supply, is all that can be fairly expected from them. The absence of reference to the attachments and more important relations of the muscles is an omission which robs this tablet of much of the merit, which, from its very brevity, it might otherwise possess for some students.

Bulletin de L'Académie de Médecine. Publié par MM. J. BECLAND, Sec. Perpetuel, et HENRI ROGER, Sec. Annuel. Paris: G. Masson. Pp. 1,548.

Report of the Academy of Medicine. Published by J. BECLAND, Perpet. Sec., and HENRY ROGER, Annual Sec.

In the volume now before us we have the reports of the meetings of the thirty-seventh year of the Academy of Medicine, containing a mass of papers, discussions, and reports on subjects the most various. From the nature and size of the volume, it would be impossible that any detailed notice should be given of the various subjects of which it treats; but some few of them we may notice as containing points of interest to the practical physician and to the hygienist. With the subject of typhus fever the Academy was occupied during several meetings, the discussion having been opened by a paper by M. Chauffard, advocating the theory that not only are poverty, famine, and overcrowding necessary for its production, but also that a fourth factor must be present—namely, a certain proclivity of *race* to the disease. Thus he states that in France the disease, though sometimes introduced, can never become epidemic, the French people, according to him, having a kind of immunity from it, while other races, such as the Irish, he holds, are always liable, *as a race*, to the spread of the disease. The second paper on the subject, read by M. Briquet, was also of interest, from his endeavouring to revive the idea of the identity of typhus and typhoid fever—the first being, according to him, only a severe form of the second. The opinions of nearly every member of the Academy was, however, shown to be against this theory, a theory which has so frequently been advanced, but which is now, for the most part, abandoned both here and on the continent. This we may regard as the most important point in the discussion, showing to what conclusion the minds of French investigators have been drawn on the subject of the identity of typhus and typhoid fevers.

As to the theory of M. Chauffard, concerning the influence of

race on the spread of typhus, the facts brought forward must be regarded as, at the least, inconclusive.

An interesting question is also brought forward on the subject of cholera by M. Guérin, who affirms boldly that cholera cannot be imported, but arises always from conditions which exist at the place where it shows itself. The effect which this theory, if proved, would have on sanitary measures is evident, especially in the case of quarantine or isolation of infected districts. M. Guérin, indeed, is strongly opposed to such measures, on the ground of their inutility. We cannot, however, avoid noticing that his statement of facts is but incomplete and one-sided, and, as pointed out by another speaker, M. Fauvel, that they may, when differently looked at, lead to a conclusion quite contrary to that drawn from them by M. Guérin. Indeed, the weight both of reason and authority is so decidedly against his theory that we may safely dismiss it with this brief notice, the more so as the epidemic from which the chief mass of his facts is taken occurred at Havre, a sea-port in communication with all parts, and between which and Hamburg, where the disease was then raging, vessels were at the time passing daily.

The question of septicæmia is treated of in a number of meetings, the subject being introduced by M. Davaine, in two discourses, the first detailing a number of experiments made on rabbits, &c., and the second treating of the condition as found in man. M. Davaine's idea of the nature and origin of septicæmia is founded entirely on the theories long ago brought forward by Pasteur. Thus, he says, we have existing in the body two conditions, heat and moisture, and that to produce septicæmia the only necessary additions to these conditions is the introduction into the blood of certain organic substances, which, being thus in a favourable condition for development, rapidly multiply, and produce the septic state. The idea is, in fact, simply an extension of Pasteur's theory of the putrefaction of organic substances outside the body. His experiments present a peculiarity in the fact, that for his injection he made use of what we may justly call infinitesimal doses of the supposed poisonous material, in some making use of dilutions which gave in each dose only $1.000.000.000$ of a drop of the original. These injections, however (and M. Bouley states that on repeating the experiments he obtained a like result), M. Davaine says were always followed by the production of the characteristic *bacteria*, which, he states, are to be found in septicæmic blood. Surely, however, when such an extreme dilution is used, we must feel

inclined to refer any succeeding phenomena rather to the result of the local condition produced by the wound made for the purpose of introducing it than for any direct action of the substance itself. Indeed, in the experiments detailed, we find the earliest symptoms generally were found about the injured part, not, as we should expect from a ferment introduced into the blood, and carried throughout the system, developing themselves simultaneously at different parts of the body. Moreover, in certain similar experiments made by M. Vulpian, it was in some cases found that the injection was followed *only* by local abscess, &c., at the point of injection, the general system remaining wholly uncontaminated. Several members of the Society besides M. Vulpian spoke in opposition to the theory of M. Davaine, and, amongst others, M. Chassaignac gives us two papers; but we cannot say that in them he has produced any strong arguments on his side, or at all appreciated the really weak points in those of his opponents. On the same subject M. Colin read before the academy two papers, in which will be found, perhaps, the best exposition of M. Davaine's theory of septicæmia under a modified form.

On other discussions—such as that on the medical service of the army, a discussion on the mineral waters, &c.—we cannot here speak, the interest in these subjects being of a more confined character, and the discussion long, and perhaps not very conclusive. As discussions such as those we have already spoken of occupy many of the weekly meetings (that on septicæmia extending over eight), and as some meetings were chiefly taken up by mere formal business, the number of subjects of general interest brought before the Academy is necessarily small, those already noticed being, indeed, the only ones in the volume.

Traité des Sections Nerveuses. Physiologie Pathologique—Indications—Procédés Operatoires. Par E. LÉTIÉVANT, Chirurgien en Chef Designé de Hotel-Dieu de Lyon, &c. Paris: Baillière et Fils. 1873. Pp. 548.

THE old assertion of Galen, that the effects of division of a nerve were permanently irremediable, was a received doctrine of pathology until the end of the last century. Cruikshank, Fontana, Haughton, Descot, and Prévost, by experiments upon the pneumogastric nerve of dogs and cats, showed the possibility of the reunion of this nerve

after being cut. The complete demonstration, however, of the possibility of the regeneration of nerves in general was made by Flourens in 1834 (*Expériences sur la ré-union des plaies de la moelle et des nerfs*), and the fact has been over and over again since abundantly established by every form of argument—microscopical, physiological, surgical, as well as experimental. Waller, Philipaux, and Vulpian showed that (in the lower animals) what first happens is a degeneration of the peripheric extremity of the divided nerve, which ceases at the end of about two months, then repair begins, and réunion is completed at the end of three or four months. This process is supposed to take a longer period for its accomplishment in the case of man.

Cases, moreover, have been given which have been supposed to argue the occasional occurrence of *immediate* union of a nerve. Such is the case of M. Laugier, of the immediate return of sensibility and motility after the ends of a cut nerve (the median) had been drawn together by a suture; a like case is reported by M. Houel; and Sir James Paget has given two cases having a similar bearing. Pathologists have, nevertheless, not been on all sides prepared to receive these instances as proofs of immediate nervous union, though the fact that some sensibility and mobility will often return in even a few hours to the region of distribution of the severed nerve is beyond denial. Amongst those who are sceptical in this matter our present author is one, and it is partly as the special exponent of a new way to account for the fact just mentioned that he has written this volume. His doctrine is what he designates the "Theory of Supplementary Motility and Sensibility" (*Motilité et Sensibilité Supplées*). The meaning of this may be embodied in the following statement:—When a certain group of muscles, supplied by a particular nerve, are paralysed as the result of a section of that nerve, the motions properly belonging to this group of muscles are not in all cases wholly abrogated—adjacent muscles, supplied by unaffected nerves, being capable of accomplishing some part of the actions, even though feebly. Similarly, when a sensitive nerve is divided, there is not total loss of sensibility experienced throughout the entire region of its anatomical distribution, the sensation being preserved, more or less feebly, either by means of the anastomoses of adjacent nerves, or by the conveyance of impressions indirectly to healthy neighbouring cutaneous papilla. Whether it is really worth while to dignify such a statement and interpretation of the facts of the case by

giving it the imposing title of a new theory of nervous action or not, we leave the reader to form his own opinion. What is important, however, to notice is, that M. Létiévant extends his theory to the explanation of the motions and sensibility which are retained or recovered after the vast majority of nervous sections, and certain it is that he makes the explanation flowing from this manner of looking at such cases fit in well with the carefully given details of very many of the cases which he here records.

However jealous M. Létiévant may be for the honour of his pet theory—and he does, to us, seem occasionally inclined to stretch it a little beyond the limits of its legitimate application—it is not, nevertheless we think, to that part of his work devoted to an exposition of it that surgeons will feel themselves most indebted. We venture to think that the chief value of his book will attach to the very full and complete list of cases of sections of nerves (whether accidental or designed) in all regions of the body, which he has collected together in the present volume, and which will always constitute it a useful book of reference on the subject it treats of.

The work consists of three parts.

Part I. is devoted to a description of the physiological and pathological effects of sections and lesions of the several individual nerves. In it the author enters upon a full, and, it must be confessed, somewhat prolix exposition of his theory. Indeed, so much apparently in his mind does the elucidation of this theory outweigh, in importance, all other considerations bearing upon the question of nervous lesions, that he has not thought it worth his while to investigate almost any particular relating to this interesting class of cases which does not directly refer to this single point. Of the eighty-six cases recorded in this part of the work, M. Létiévant admits regeneration of the nerve in but four or five of the whole number, although in a large number of instances practically complete sensibility and motility were recovered—this recovery, according to him, being not the result of nervous reunion, but of the supplementary sensibility and motility of which he speaks. Whatever theory may hold, the certified results of such a list as this have some practical significance at any rate—viz., they must inspire surgeons with a very hopeful prognosis in cases of wounds of a nerve, and give them greater boldness in the performance of nervous sections.

Part II., which is far the most interesting and, we think, important

portion of the work, concerns the practical surgery of nervous sections. The author here discusses fully the question of neurotomy as it has been employed in the treatment of the following affections:—Neuralgia, Symptomatic Pains (as of cancer), Tetanus, Epilepsy, Chorea, Muscular Contractions, Tumours, and Wounds of Nerves. In this portion of the book M. Létiévant enters upon many questions of historical, theoretic, and practical detail, and, while we cannot wholly exonerate him from the charge of a little special pleading—always with his favourite theory in view—we must admit that he has brought together a great deal of useful and important matter. We cannot, of course, follow him through all the details into which he enters, but may refer to one or two points. In reference to nervous section in neuralgia, M. Létiévant adopts the division of neuralgias into the *peripheral* and the *central*, and he claims a fair amount of success for operative interference, even in cases belonging to the latter class; to neuralgias of the former class neurotomy has, he points out, a rational application. Since Larrey first proposed and practised section of a nerve in tetanus, neurotomy has (M. Létiévant shows) been occasionally resorted to by surgeons during the years which have intervened, with a proportion of success which he makes out to be highly encouraging, ten out of sixteen recorded cases having recovered, one of the successful cases being one treated by the writer himself. In advocacy of surgical interference he contends for the local origin of the disease in some definite pathological condition of the nerve concerned in the wound, and he refers to the remarkable experiment of Brown-Séquard, who induced tetanic symptoms by implanting a nail in the paw of a dog, which immediately ceased on his dividing the nerves of the extremity experimented upon. It is not, however, in all cases of tetanus alike that neurotomy is equally indicated, or can be expected to be followed by the same measure of success. M. Létiévant limits its applicability more especially to cases where, associated with the general tetanic condition, there are found certain local manifestations referred to the wound. The frequency of local phenomena of some kind in the majority of cases of tetanus he believes to be a circumstance which is overlooked too much by surgeons; they were present in seven out of nine cases observed by himself, and he refers to Larrey and Biard as authorities who have insisted upon their habitual occurrence. He more definitely alludes to the following as amongst the more significant local signs to be looked for:—1. The occurrence

of local muscular contractions, preceding or accompanying the general tetanus; 2. the obvious presence of local irritation of a nervous cord in the wound, as, e.g., a foreign body impacted in a nerve; 3. the occurrence of an *aura tetanica*, or local pain or sensation premonitory to the general spasm; 4. the fact of pressure over the trunk of a nerve leading to the wound inducing special painful sensations. This last sign is one which was observed remarkably in a case in which its presence induced Mr. Wood to divide the internal saphenous nerve in a case of tetanus from compound fracture of the leg, with a successful result, and it is, in M. Létiévant's opinion, a sign of such great significance that he has specially designated it "*le signe de Wood*," and thinks it should be always sought for. From this it is immediately obvious that neurotomy is, of course, not contemplated in cases of idiopathic tetanus. In cases of epilepsy which owe their origin to any peripheric irritation, or where the access is distinctly heralded by a well marked and definite local aura, neurotomy is plainly indicated, and M. Létiévant gives a series of cases, eighty per cent. of which were successful.

Part III. describes the various methods of arriving at and operating upon the different nerves. It is in this place, too, that the author describes more particularly the local pathological events of nervous sections. In connexion with this latter part of the subject, he enunciates the two following important laws, derived as deductions, partly from experiments upon animals, and partly from observation of cases here given:—1. Regeneration of a cut nerve will not take place if the extremities be separated by a distance of more than two centimetres. 2. Fourteen months may be taken as the shortest limit of time within which perfect reunion of a human nerve will take place. The most definitely described operations upon nerves are those upon the branches of the trigeminal. Of these, the most remarkable is the now recognised American operation—the so-called "operation of Carnochan"—for excision of the trunk of the superior maxillary nerve along with Meckel's ganglion. This operation has been performed by its originator twice, with successful results, and has been since performed by Bruns, Michel, and Linhart. The ganglion is reached by opening from the cheek into the antrum, and through it removing as much of the posterior wall and tuberosity of the superior maxillary bone as is necessary to expose the contents of the spheno-maxillary fossa. Formidable as this operation may appear, it is proposed as a less

serious alternative than excision of the maxilla, which has been deemed advisable, and absolutely accomplished, in the same class of cases to which it is conceived to be applicable.

M. Létiévant's work is illustrated by a series of engravings, of which, however, we cannot speak in terms of commendation. They are in many instances inaccurate (*e.g.*, Fig. 2), and, more especially in the operative portion of the work, many of the figures—designed, as they are, to assist the anatomical knowledge of the operator—would, if followed, in several cases most sadly mislead as to the anatomical situation of the nerves depicted (see Figs. 10 and 12); and in all cases they seem to us to be singularly wanting in anything like a graphic delineation of parts. A work descriptive of operative procedures is certainly better without illustrations if these be not absolutely reliable in the anatomical relations of parts which they suggest.

On the Structure of Cancerous Tumours and the mode in which adjacent parts are invaded. By J. J. WOODWARD, Assistant Surgeon U.S.A. Washington. 1873. Pp. 40.

THIS is the first of the "Toner Lectures," which have been instituted by Dr. John M. Toner to encourage the discovery of new truths for the advancement of medicine; it is published by the Smithsonian Institution among their miscellaneous collections.

The author has selected his subject in consideration of the great mortality caused by cancer, and because of the obscurity which surrounds every question connected with its origin, its nature, and its successful treatment.

He modestly repudiates any attempt to treat the question *practically*, that is, as regards prognosis or diagnosis during life; he thinks, and every well instructed pathologist must agree with him, that "the time has not yet come for anyone to tell why cancers originate or how they may be prevented or cured;" but he treats the subject from the point of view of medical science, rather than from that of medical or surgical art.

Passing rapidly over the history of the time when cancerous and other growths were supposed to arise in a formless blastema effused from the blood, and the period when the cellular pathology was dominant, according to which the neoplasms arose from abnormal proliferation and development of connective tissue

cells, Dr. Woodward dates a new era in the history of cancer from the appearance in 1865 of Professor Thiersch's great work on epithelioma. In this Thiersch maintains that, so far at least as cutaneous cancer is concerned, the cylinders and masses of epithelioid cells which form the bulk of the tumour arise not from the connective tissue cells of the corium, but by proliferation from the deeper layers of the epidermis, and from the epithelium of the cutaneous glands. This new growth of epithelium projects into the true skin, which is pushed aside and disappears, except those parts which remain to form the stroma, and in which a small-celled connective tissue growth occurs. This, however, takes no part in the formation of the epithelial masses, which arise exclusively from old epithelial cells.

In 1867 Waldeyer extended Thiersch's views to all cancers, and in 1872 the same author published a second paper in which he again maintained his former opinions. In both publications he noticed particularly the small cell growth which is seen about the growing cancer, and in his later work he admitted that many of these small cells were white blood corpuscles which had wandered out of the vessels; but he still affirmed that these small cells took no part in the formation of the cancer cell-masses, which were always out-growths from pre-existing epithelium.

In 1869 a work appeared by Dr. Koester in which he remarked that the epithelial cancer masses formed anastomosing cylinders, the network formed by which precisely resembled that of the lymphatics in the parts affected. He further thought he could prove that the cells forming these cylinders were formed by proliferation of the endothelium of the lymphatic vessels.

In 1870 Classen published a paper on the development of carcinoma, based on the study of a case of epithelioma of the cornea and sclerotic, in which he admitted that the cancer cylinders lie in the lymphatic spaces, but he derived their origin not from old epithelial or endothelial cells, but exclusively from emigrated white blood corpuscles.

In 1871, and without having seen Classen's paper, Dr. Woodward advanced similar views, but in a less exclusive form.

Leaving the historical part of his lecture, the author now proceeds to his own observations. Dr. Woodward is well known as a most successful photographer of microscopic objects, and some idea of the interest of this lecture will be gained when we say that during its delivery seventy-four micro-photographs of sections of

cancerous tumours were exhibited on the screen by the oxy-calcium lantern; five only of these are reproduced as wood engravings.

The following quotation gives the author's views as to cutaneous cancer, formed from an examination of a number of these specimens:—"I trust the foregoing illustrations will enable you to follow me when I say that in epithelial cancers we have to do, on the one hand, with the ingrowing from previously existing epithelial structures of branching epithelial cylinders, on the other hand, with a small-celled infiltration of the connective tissue, the cells of which in all probability have migrated from the blood-vessels. All that I have been able to see inclines me to give my assent to the opinion that the cylinders lie in the lymphatic capillaries, or in distended lymph spaces; the small cells occupy the smaller lymph spaces of the connective tissue in which they are found. The preponderance of the fully formed cancer cylinders, or of the small-celled brood, determines considerable diversity in the details of different growths, and this is increased by the circumstance that in some cases the connective tissue papillæ of the part involved grow outward, and branch as in the first case I presented to you. I cannot pause here even to sketch the varieties thus produced, but I wish to add that I am not prepared to agree with Billroth that Thiersch and Waldeyer were right in regarding it as fully established that the cancer cylinders grow by a multiplication of their epithelial elements by division. On the contrary, I wish to draw attention not merely to the fact of the swarm of small cells about the terminal ends of the cylinders, but to the additional circumstance that, in almost every section of epithelial cancer in the Museum collection, I find among the epithelial cells numerous unmistakable wandering corpuscles, often fixed by the reagents used, with their processes extended as in the act of migration. If Biesiadecki is right in believing that the ordinary growth of epithelial tissues is effected, not by cell multiplication, but by these wandering corpuscles becoming fixed and developing into epithelial cells, we shall readily understand the significance of this circumstance. But, be this as it may, I cannot doubt that, in many cases at least, besides the continuous epithelial outgrowth, however that may be effected, a portion of the small-celled brood accumulating in the lymphatic passages undergoes a transformation into epithelial forms, and thus contributes its share to the growth of the cancer."—Pp. 19-20.

In cancer of the breast, the author attributes greatest importance

to the small-celled growth which is seen so abundantly at the margins of the tumour. He thinks that these small cells, originating as white blood corpuscles, leave the vessels, accumulate in the lymphatic spaces, and undergo transformation into the cancer cylinders, "forming probably the greater part of tumours which have attained any considerable size, and the whole of those which develop as secondary growths after the complete extirpation of the gland for cancerous disease."

Numerous specimens of cancer in fatty tissue, in the stomach and in the ovary, are next shown and commented upon.

The author holds firmly to the opinion that cancer is primarily a local disease, and consequently advocates its early removal. He thinks its frequent recurrence is due to incomplete extirpation, the small cell growth being widely extended and apt to escape detection. He further thinks that many tumours attain a size sufficient to make their removal necessary before the unquestionable cancerous structure is developed in them, when there is only a small-celled infiltration of the connective tissue with some increase in the epithelial elements of the glandular parts. Although such a tumour may not show the anatomical structure of cancer, yet we cannot say that had it been left it would have pursued a benign course, or that the further progress of the case may not exhibit the most extreme malignancy.

In concluding our notice of this very able lecture, we would wish to make one remark on the views put forward by the author. We are perfectly familiar with the small cell growth which he speaks of as preceding and accompanying the formation of cancerous tissue, and we think it very probable, although we are by no means certain of it, that these small embryonal cells take part in the formation of the epithelial cylinders and masses of the cancer. But the point which, it appears to us, is too much taken for granted, is that these small cells are derived from the blood, and not, as according to the teachings of the cellular pathology, by proliferation from the cells of the parts affected. That connective tissue corpuscles can so proliferate, and give rise to such a small-celled brood, we have not the smallest doubt, but whether these cells can develop into the so-called cancer cells, or whether they are incapable of further development, we cannot say.

We think that Biesiadecki's observations on the formation of epithelium from wandering cells is much in need of confirmation.

That young cells are found in greatest abundance in the neigh-

bourhood of vessels is no proof that they have arisen by emigration, for where a part is most freely supplied with pabulum, there will its cellular elements most readily proliferate; and it is not surprising that the new cell growth, whether small cells or epithelial cylinders, should advance along the paths of least resistance, such as we may suppose the lymphatics to be. In short, we think that the origin and destiny of the small-celled brood are still matters for investigation, which, as Dr Woodward says, is urgently needed, and ought by all means to be encouraged.

The Sphygmograph: its Physiological and Pathological Indications.

By EDGAR HOLDEN, A.M., M.D. Philadelphia: Lindsay & Blakiston. 1874. Pp. 169.

THOSE who are practically acquainted with the working of the Sphygmograph of Marey, either in its original form or in its later modifications, know, that in order to get a reliable tracing, great care must be taken to make the tactile spring press fairly on the artery as it passes over the lower end of the radius, that the friction between the pen and the moving plate must be reduced to a minimum, and that every precaution must be taken to prevent muscular twitchings, which would throw the instrument off the vessel or deform the writing. Dr. Holden has invented a sphygmograph in which it appears to us all the imperfections of Marey's are exaggerated, and several new ones added, and with which, we are inclined to think, it would be impossible, no matter what care was taken, to get at all a fair representation of the arterial movements. The tactile spring, instead of being convex or flat where it rests on the vessel, is grooved so as to embrace the artery, on which it does not press vertically, but somewhat obliquely, from the side. That, by this means, the pressure of the spring is only very partially exerted on the artery, is best shown by the fact that a force of 17,000 grains, or nearly $2\frac{1}{2}$ lbs., is sometimes used with advantage. This pressure, if acting directly on the artery, would certainly obliterate its tube and stop the pulse altogether. The motion of the writing lever, instead of being in a vertical plane, as in the usual sphygmographs, is, in Dr. Holden's instrument, from side to side, and the writing is made on paper with ink by a heavy steel nib, attached to the end of the lever and resting by its point on the paper. In this arrangement, it is easy to see that the friction between the pen

and paper must be enormous. Finally, instead of having the sphygmograph fastened on the arm during the observation, it is merely held by the observer, and in this way we have, superadded to the danger of movement on the part of the patient, that of unsteadiness on the part of the person holding the instrument, which will not only introduce foreign elements into the curve, but will cause uncertain variations in the pressure of the spring on the artery.

As might be anticipated from the construction of the instrument, the tracings, of which nearly three hundred are given, are for the most part artificial products. There is a general shakiness and want of distinctness about all the curves, their amplitude is small, and, often, the waves caused by successive beats of the pulse have only a slight resemblance to each other.

In his explanation of the different events in the sphygmographic trace, the author follows, with some few exceptions, the teaching of Dr. Sanderson, reproducing even the unaccountable statement as to the absence of elasticity in liquids.

We think this teaching is much in want of revision, and the objections raised against it recently by Dr. Galabin appear to us to have very great weight.

In the pathological part of his essay, Dr. Holden does not develop any general principle, but merely presents a number of tracings, with commentaries thereupon, and on what he believes to have been the condition of the circulation of the patient at the time each was taken.

In the third part are detailed experiments on the actions of *cannabis indica*, *aconite*, *gelsemium sempervirens*, and *quinine*. Tracings are given which are intended to show the effects produced by these drugs on the pulse, but they are so imperfect, that we do not think the results obtained are reliable.

We believe that, had Dr. Holden worked with a sphygmograph of better construction, he could hardly have failed in obtaining interesting and important results, but, as it is, we greatly fear that, notwithstanding the very large field of his observation, and the evident pains and labour expended in the preparation of his essay, he has scarcely, if at all, advanced our knowledge of the arterial circulation.

De la Régénération des Organes et des Tissues en Physiologie et en Chirurgie. Par J. N. DEMARQUAY. Paris: J. B. Baillièvre et Fils. 1874. Royal 8vo. Pp. 328. With four plates.

THERE is a story commonly told of a man who became possessed of a knocker for a hall door, and who, on the strength of this possession, thought it necessary to build a house. So M. Demarquay, having made some investigations and experiments on the healing of tendons, felt himself impelled to write the large work before us, in which the amount of original matter bears about the same proportion to the whole that the knocker does to the entire house.

We shall pass over all the earlier parts of the book, which consist of only a compilation from various sources, of histories of the regenerations of organs, or parts of organs, after their removal, in different animals, and of the healing and restoration of the tissues after their injury.

The healing of tendons is, as we have said, that part of his subject which the author has personally investigated. The chief point which he has made out appears to be that the new tissue, which fills up the gap between the separated ends of a tendon, after its division, is produced, not by a growth from the tendon itself, but from the sheath, or, if this be absent, from the surrounding cellular tissue.

After the tendon is divided, the contraction of the attached muscle separates the cut ends to a variable distance. There is usually some blood effused into the sheath and the parts about. After a short time the sheath is observed to have become thickened and vascular, and its inner surface has a swollen, pulpy appearance. If now a histological examination be made, these changes are seen to be due to what is commonly called inflammation: the cellular elements of the fibrous sheath have multiplied and assumed the appearance of young cells, or what the French writers call the "embryonal character." This proliferation advances until the interval between the ends of the old tendon is filled up by young connective tissue produced from the sheath. This unites firmly with the cut ends of the original tendon, which are themselves swollen from proliferation of their connective tissue cells. The young tissue organises and comes at last to resemble fully formed tendon. The serous interval between the tendon and its sheath is restored subsequently. The effused blood takes no part in the healing process.

It is for the most part absorbed, some of its colouring matter occasionally remaining as pigment in the cicatrix. When, as in the case of the Ligamentum patellæ, the tendon has no sheath, the surrounding connective tissue proliferates and mainly contributes to the formation of the new tissue.

M. Demarquay advocates the joining by suture of accidentally divided tendons. If this be done, the healing is effected by a very narrow cicatrix formed chiefly by the ends of the tendon itself. There is, however, almost invariably inflammation of the sheath, and temporary adhesion of this with the tendon at the seat of section. Even in old cases, after division of tendons, if the movements of the parts are not restored, it is often useful to dissect out the cut ends, and, having refreshed their surfaces, to join them by suture.

A long chapter on the principal conditions which favour or prevent regenerations concludes the book.

The Study of Life. By H. MACNAUGHTON JONES, M.D., Ch.M., &c., &c. Dublin: Fannin & Co. 1874. 8vo. Pp. 80.

We feel great difficulty in knowing what to say of this book. We have read it twice carefully, and still we are unable to form any clear idea of what it is all about, or to discover any connected line of argument running through it. It appears to be a sort of rhapsody interspersed with long quotations, *& propos* of nothing at all, from the works of Sir J. Lubbock, Dr. Brewer, Dr. Bain, and other writers.

There are, however, two points which are tolerably plain. One is that Dr. Jones adopts a peculiar modification of the so-called Darwinian theory. He thinks that the higher forms of animal life have been developed by natural agencies from others much lower in the scale, but that this progressive evolution stopped short of the production of man, who owes his existence to a special act of creation, and who since his appearance has varied only so far as to give rise to the different races of men as we now see them. The other opinion put forward is, we think, quite indisputable, namely, that every vital manifestation occurring in our bodies is accompanied by a corresponding material change in the tissues of which our bodies are composed.

It is true, as pointed out by Dr. Jones, that the views of Mr. Darwin are most absurdly misrepresented, and it is also true that

of those who correctly understand the ideas lying at the basis of the hypothesis of evolution, extremely few possess that comprehensive knowledge of geology and of natural history necessary in order to make any opinion they express valuable one way or the other. But we find it hard to imagine how anyone can hold the theory as applicable to the great mass of the animal world, and yet exclude man from its working. The grounds on which Dr. Jones adopts this exclusiveness are, or appear to be, the absence of intermediate forms between man and the animals next to him, and the possession by man of an immortal soul, while all the others are "beasts that perish." Now, the gap, in point of structure, which occurs between man and some of the apes is, we believe, not wider than some of those which occur lower down in the series, and this is, in some parts of his book, admitted even by Dr. Jones himself; and as to the other reason, we respectfully submit that it is not scientific at all, and that if we leave the purely scientific standpoint, we must give up the theory of evolution altogether.

Here we should state the author's views as to the relation between religion and science. His book opens with an awful warning to the clergy that, owing to the spread of education among the working classes, their day will soon be done unless they learn human and comparative anatomy, to say nothing of geology and natural history. "The truths of revealed religion *must* be taught by men of science, interwoven with the facts of science, and exemplified by those facts." This is, we think, an utter mistake. It is impossible to interweave science and religion without destroying both. It is true there are many men who have a thorough grasp of science, and who still entertain deep religious convictions; but they do not mix up their science and their religion, and they no more look for scientific exemplification of their religious convictions than they expect to have scientific facts revealed to them by supernatural agency. Scientific facts can be reasoned upon, are demonstrable and capable of proof, and should not be received on authority or without such demonstration. Religious truths, on the other hand, are, on their own showing, incapable of discovery by the human mind, are altogether above reason, and must be accepted without proof or demonstration. Anyone who cannot receive the truths of revealed religion in this way, without question, as a little child, had better leave them alone, for if he once begin to reason about them, he will very soon find himself in the deepest slough of scepticism.

In general, when a writer wants to reconcile, as it is called, religion and science, he picks and chooses among religious doctrines those which best suit his partial scientific views, and accepting these, he rejects the others, and adopts a sort of hybrid belief neither religious nor scientific, and which is fit only to show the absurdity of a religion which admits the right of private judgment.

Such a travesty of religion and science is presented to us by Dr. Jones. Having read that the results of geological investigation do not agree very well with the Mosaic account of the Creation, he consents to give this up so far as the beasts are concerned, but although he mistrusts revelation in the case of these, yet as regards the creation of man he holds views that would do credit to a bishop. Man was formed out of clay, or, according to our author, whose information is very minute, out of red earth, by which we may suppose the iron in our blood is accounted for.

A very terrific description is given of the pre-Adamite animals, which reminds us forcibly of the *fee-faw-fum* stories with which we used to be frightened in our childhood, and which may be taken as a specimen of the science with which Dr. Jones proposes to exemplify religious truth. First, before there was any light, and we may suppose before there was any sun (in what part of space and in what condition as to temperature the earth was at this time does not appear), also before the appearance of vegetable life, "the huge, sightless cephalopod ruled as monarch of the deep." Then "a change came over the face of the waters," by which we suppose the lighting up of the sun is indicated, and ferns and algae appeared. Next, "fishes rushed in countless hosts through the paths of the sea, and beheld with disdain the sluggish movements of their gelatinous and crustaceous antecedents." Then the gigantic labyrinthodon, with its vast gaping jaws of labyrinthian teeth, struck fright and terror into all its weaker contemporaries. Then we have the extraordinary ichthyosaurus, fierce and remorseless, 50 feet long, with "enormous orbs" a foot in diameter, and 210 teeth, combining in itself the attributes of porpoise, crocodile, fish, lizard, and whale, pursuing its prey with lightning speed, or basking on the sandy beach; and so on through the pterodactyl and the monster lizard, which was bear, crocodile, and hog all in one, until we come back to Moses, and we find God creating man in His own image.

Throughout the whole book the same inflated style prevails. The language is what the Americans call very tall; so tall, indeed, as often to lift the meaning quite out of sight.

Words are used in the loosest possible way. For example, the word evolution, that occurs in every page, is used to express the Darwinian evolution, the development of an insect from the egg through the larva and chrysalis, and the life and death of a part of the body, such as a hair or nail.

Even in purely medical matters we find the most extraordinary statements, as that the most fatal form of jaundice is produced by mental depression, and that the posterior staphyloma which causes myopia is an affection of the optic nerve and retina, a rather startling announcement from the surgeon to an ophthalmic hospital.

Dr. Jones talks of the anatomy of the brain as if the course of each fibre and the connexions of each cell were known; but the investigation of the minute anatomy of the nerve centres is a very different kind of microscopic exercise to reading the Lord's Prayer in a micro-photograph, and one for the solution of which we shall have to wait a long time. But supposing it were perfectly known, and supposing, moreover, we knew the exact changes which accompanied each mental state, we should be still as far as ever from any knowledge of the connexion between the mind and the body. This, like other problems attempted in the work before us, are unknowable to beings with the perceptions of men, and it would be wiser to try to advance our knowledge along those paths which lie open to us, and not to waste strength striving after the unattainable.

We have often wondered in reading this book what object the author could have had in writing it. He could not fancy that he would bring over the so-called religious people and the clergy to his scientific views by calling their sermons "vapid sputterings" and "Sabbatorial twaddle," and he surely could not suppose that his work would present any attraction to an accurate thinker or earnest scientific worker. We can only suppose that the desire for authorship was the incentive—

"'Tis pleasant, sure, to see one's name in print ;
A book's a book, altho' there's nothing in 't."

But this is a pleasure Dr. Jones has enjoyed so frequently of late that we should have thought it would by this time have palled on him. If Lord Bacon lived now he would not say that writing maketh an exact man; there is as much loose writing as loose talking now-a-days, and far too much of both.

Surgical Emergencies. By WILLIAM PAUL SWAIN, F.R.C.S. Eng.
Pp. 220. London: J. & A. Churchill, New Burlington-street.

THIS little manual belongs to a class which has come into existence of late years, whose professed object is to give the largest amount of information in the least possible space. The purpose is a good one if it can be efficiently carried out; but in so far as students trust to their fragmentary information, to the neglect of the larger works, these books are not desirable. The manual before us is intended for a more advanced body—the general practitioners, and deals with the emergencies which are likely to occur in the surgical and obstetric branches of professional work. In a publication of this sort it is absolutely essential that condensation should not be carried out at the expense of intelligibility. But we cannot acquit Mr. Swain of this fault. He has slurred over some points in an unaccountable way, and has taken pains to describe operations, which, we venture to think, are quite unnecessary in such a book. In the treatment of strangulated inguinal hernia, we find the following direction:—"In attempting the taxis, the patient should be placed with the pelvis raised, and the thighs close together, pressure being made upwards and outwards." There are no other directions in the book as to the mode of conducting the taxis, and these are decidedly most inadequate. If the young surgeon obeyed the paragraph implicitly we should fear the consequences. There are certain "rules" as to taxis, but there is no description of the manner in which manipulation should be conducted. We do not know whether Irish surgeons will acquiesce in the "rules," that in taxis "the attempt in a small hernia should not extend over two minutes," or that it is "quite inadmissible" where the strangulation has been for some hours, and constitutional symptoms are present. We question the practice that subjects a patient to a cutting operation after a two minutes' attempt to return a small hernia.

In the treatment of fractures the hints are, on the whole, fair. We notice that he is one of the first to figure Dr. Gordon's new splint for fractured clavicle. But in this and in the treatment of Colles' fracture, he gives lengthy descriptions of Dr. Gordon's splints, "from his own pen," to the exclusion of all others. The optional treatment for fractured clavicle is disposed of thus:—"The usual treatment, with the pad in the axilla and the figure

of ∞ bandage, is quite inadequate to keep the fragments in place; and, if no other means are at hand, bandaging the arm to the side, and supporting the fore-arm in a sling, is sufficient." In the treatment of Colles' fracture, he confines himself absolutely to Gordon's splint. From personal experience of this we can speak most highly, but it is not a splint most usually to be found in the armamentarium of general practitioners, for whom this book is intended.

There are several other plans of treatment much more common than either of those Mr. Swain has mentioned, and some of these he ought to have detailed. A pistol splint, or an anterior and posterior splint, might be readily made, where the practitioner would find himself quite bewildered by the Gordon. In fracture of the shaft of the thigh, the Liston splint, with others, is described, but there is no hint about the necessity of preventing tilting forwards of the upper fragment.

Mr. Swain has also introduced some operative surgery, but much of it is indifferently described. For instance, in forty words he manages to dispose of amputation of the thigh in the upper and the lower third; while he writes elaborately upon amputation at the hip-joint, and on ligature of the two tibial arteries in the upper part of their course. In injuries of the foot he does not even mention Symes' operation.

In his description of Hey's amputation, after giving the outlines of the flaps, he says:—"With a saw divide the metatarsal bones just in front of their articulations with the tarsus." We object to this being described as Hey's operation. That distinguished surgeon himself writes:—"I then separated with the scalpel the four smaller metatarsal bones at their junction with the tarsus, which was easily effected, as the joints lie in a straight line across the foot. The projecting part of the first cuneiform bone, which supports the great toe, I was obliged to divide with the saw." What Mr. Swain describes may be a good operation, but he is entirely inaccurate in attributing it to Hey.

There are other points in this book to which we should refer if space permitted. It has some very good qualities, but we fear they are almost counterbalanced by the defects. With a careful revision it may, should it ever arrive at the dignity of a second edition, prove more valuable to the class for whom it is intended than it is likely to be in its present form.

A Practical Treatise on Urinary and Renal Diseases, including Urinary Deposits. Illustrated by numerous Cases and Engravings. By WILLIAM ROBERTS, M.D., Fellow of the Royal College of Physicians, London; Physician to the Manchester Royal Infirmary; Lecturer on Medicine in the Manchester School of Medicine. Second edition, revised and considerably enlarged. London: Smith, Elder, & Co.

THE second edition of Dr. Roberts' well-known work on Urinary and Renal Diseases has been for some time in our hands. The work is considerably enlarged, and includes all the more recent additions to our knowledge on the subject of urinary pathology. Of the new matter which is to be found in the present volume, the most interesting is a chapter on Suppression of Urine. These cases are divided by the author into obstruction and non-obstruction—the division being based on the presence or absence of an obstruction in the excreting channels through which the urine must pass.

A point of much practical importance is noticed—namely, that in some cases of suppression, proving fatal by uræmia, a considerable quantity of watery urine may be passed at irregular intervals. In one of the cases recorded by Dr. Roberts, in which death took place nine days and a half after the commencement of suppression, no urine whatever was excreted during the first three days; during the next four days an aggregate quantity of fifty-four ounces was voided; and during the last two days and a half no urine was passed, but six ounces were found in the bladder after death. The urine discharged was, however, exceedingly dilute, containing only two grains of urea to the ounce, so that although the quantity of sixty ounces seems considerable, the total amount of urea excreted during the nine and a half days during which the patient survived, amounted to only one-fourth of the normal quantity excreted in health during a single day.

An interesting chapter on Paroxysmal Hæmatinuria will be found in the present edition. The account of this affection is based on twenty cases recorded by different observers, two of these having been examined by Dr. Roberts.

We regard this work as certainly the most complete and practical treatise on the subject of urinary and renal diseases with which we are acquainted in the language.

A Report on the Cerebral Affections of Infancy; with a few Comments and Practical Remarks. By EDWARD COPEMAN, M.D., Senior Physician to the Norfolk and Norwich Hospital, &c. Norwich: Fletcher & Son. 1873.

THIS little work contains a *résumé* of the opinions with regard to the nature and treatment of brain disease in childhood, expressed by a large number of the most eminent writers on this department of medicine. The series commences with Walter Harris, whose work, *De Morbis Acutis Infantum*, was published in 1715, and terminates with the great work of Rilliet and Barthez, published in 1843. It is from the last-named work that the most copious extracts are made, and the author adds some practical observations of his own, which, while unpretending in character, are not devoid of clinical value. There is a good deal of curious information contained in this work, and it will be found to well repay perusal. The subject of acute hydrocephalus occupies, as may be supposed, an important place in these observations. We could have wished that the compiler had found space for the graphic and most faithful account of this disease given by Troussseau, to whom we are indebted for the recognition of the cerebral spot—an indication which is of considerable diagnostic importance in doubtful cases. The following propositions, brought forward by Dr. Copeman, are of importance in a practical point of view, and are sound and well-considered, although No. 11 would be regarded as a bull if it emanated from this side of the Channel:—

- “ 1. Cerebral diseases occur most frequently in children of a scrofulous habit, or born of scrofulous parents.
- “ 2. Scrofula greatly modifies the character of cerebral as well as other diseases.
- “ 3. Cerebral diseases may exist independently of scrofula.
- “ 4. Headache, vomiting, constipation, and more or less pyrexia, are a combination of symptoms denoting, in children, serious, and often unmanageable, cerebral disease.
- “ 5. A species of hydrocephalus, chiefly indicated by the preceding symptoms, is generally accompanied with, or depends upon, tubercular disease of the brain or its membranes.
- “ 6. There exists another species of hydrocephalus, attended with the usual symptoms of phrenitis, which is of a strictly inflammatory nature, and curable by strictly antiphlogistic remedies.

" 7. Hydrocephalus resulting from tubercular disease may assume an active inflammatory type, and be scarcely distinguishable from the last variety, except from not being so amenable to antiphlogistic treatment.

" 8. Symptoms similar in many respects to those of acute hydrocephalus, in one or other of the above forms, may arise from a state of system diametrically opposed to inflammation ; and are curable only by a nourishing and mildly stimulating plan of treatment.

" 9. Hydrocephalus, generally speaking, does not occur before the age of two years ; and boys are more liable to it than girls.

" 10. Treatment, in order to be effectual, must be commenced at an early period.

" 11. The *symptoms* of cerebral diseases in children, and the *post-mortem* appearances, have not a definite or constant relation to each other ; and the former are more useful than the latter as indications of treatment.

" 12. Costiveness is not essential to the phrenitic variety of hydrocephalus.

" 13. Many cases, accompanied with symptoms so frequently in connexion with tubercular encephalitis as not to be distinguishable from the latter form of disease, admit of being cured ; and may, therefore, be fairly admitted as instances of the *curability* of a disease which is generally supposed to be incurable."

The last proposition is, we think, too strongly stated. The cases of recovery are very rare in the practice of the great masters in diagnosis, and suspiciously frequent in the hands of those who have studied less profoundly the formidable malady in question. At the same time there is sufficient evidence of occasional cases of cure to make it imperative on the practitioner to employ every therapeutic resource which offers any reasonable promise of benefit.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

Infant Mortality: its Chief Causes and Prevention.

ACCORDING to the English Life Tables, the annual number of births in England is about 800,000; of the children born, 119,594 die before they have completed their first year. The average annual death-rate of children under one year is 165·6 per 1,000. The subject of Infant Mortality has of late attracted much attention both at home and abroad, and a digest of some important articles as to the cause and prevention of this great loss of life may not be unacceptable to our readers.

Causes of Infant Mortality.—In the *Sanitary Record* of Saturday, August 22, 1874, an article on “Temperature and Death-rate” appeared, from which the following passages are excerpts:—

“ Temperature rules the death-rate both in winter and summer to a greater extent than is generally believed; and the undisguised satisfaction with which healthy, robust, properly-clothed, and well-fed people hail the advent of extreme cold or extreme heat may, to some extent, militate against proper precautions being taken in this changeable climate to protect the weaker and less fortunately situated portion of our population from the evil effects of this so-called ‘seasonable’ weather.

“ By all those who devote even a passing thought to the facts published each week by the Registrar-General, it must have been observed that the national death-rate rapidly increased under the influence of the recent glorious summer weather. May and June and October and November are usually about the healthiest periods of the year, the temperature of these months between summer and winter being generally temperate and free from extremes. Last May and June formed no exception to the rule. During the four weeks ending June 27 last, in eighteen of the largest English towns, having an aggregate population of more than six millions and a half of persons—exceeding a quarter of the entire population of England and Wales—the annual death-rate averaged only 21·3 per 1,000, whereas in the five succeeding weeks it steadily increased to 29·5 in the week ending 1st inst. It cannot but be useful to inquire into the nature of this increased mortality

in these eighteen towns. Taking the two weeks ending June 14, the period of lowest mortality, as the standard, the deaths in these towns during the next seven weeks showed an excess of 2,518.

"On examination of the returns of deaths at different groups of ages, it is found that the deaths of infants under one year of age exhibited during this period an excess of 2,825, whereas those of persons aged one year and upwards had declined 307. It is fair, therefore, to start our inquiry on the basis of this fact, that the whole of this largely-increased mortality occurred among infants under one year of age. These deaths of infants in the eighteen towns rose steadily and rapidly from 623 and 639, in the two weeks ending June 7 and 14, to 1,654 in the week ending August 1.

"There can be no doubt as to this remarkable increase in infant mortality being due to the higher temperature which prevailed. But before examining more closely the features of the increase, it will be as well briefly to notice the temperature of the period as recorded at the Royal Observatory, Greenwich. From May 1 to May 21, a remarkably cold period prevailed, which was the more severely felt, following, as it did, an exceptionally warm April; from May 22 to June 11 it was warm, and the daily excess of temperature averaged $4\frac{1}{2}^{\circ}$. From June 12 to the end of the month low temperatures prevailed, and the average deficiency was $4\frac{1}{2}^{\circ}$, whereas in July, after a few days of moderate temperature, an excessively hot period commenced on the 8th, and lasted for eight days, during which the daily excess averaged $7\frac{1}{2}^{\circ}$. After July 15, with the exception of the 19th and 20th, which were hot, the temperature of the remainder of the month was moderate. With reference to the apparent effect of this temperature upon infant mortality, for it has before been shown that it had little or no effect on the mortality at other ages, it may be observed that the warm weather in the latter part of May and the early part of June influenced this mortality to a comparatively small extent; the rate in the eighteen towns only rose from 159.5 in the week ending June 7, to 203.5 in that ending July 11. The explanation of this may be that the temperature, although above the average for the period, did not reach that point which is dangerous to the health of infants. The effect of the excessively hot eight days ending July 15 was, however, unquestionable, and the rate of infant mortality rose to 277.2, 401.6, and 428.8 respectively in the three weeks ending July 18 and 25 and August 1. In the week ending August 1 the rate of infant mortality was equal to 358.1 per 1,000 in London, and to 488.7 in the seventeen provincial towns, among which the highest rates were—535.7 in Birmingham, 546.4 in Leeds, 590.6 in Sheffield, 826.1 in Nottingham, and 865.7 in Leicester. It is fortunate that these high infant rates last but for short periods, or the effect upon the increase of population would be highly important."

Analysing the diseases which caused death, the same writer observes:—

“In London, during the fortnight ending June 14, the annual death-rate among infants under one year of age was equal to 142·5 per 1,000, whereas in the two weeks ending August 1 it had risen to 365·3. The deaths at this age in the two latter weeks showed an increase of 871 upon those returned in the two first-mentioned weeks, having risen from 557 to 1,428. Of this increase 630 were referred to diarrhoea, leaving 241 to be accounted for by other diseases; 168 of the excessive deaths were referred to the somewhat indefinite headings (in the classification of diseases adopted by the Registrar-General) of atrophy, debility, convulsions, premature birth, and want of breast-milk; 64 resulted from tubercular diseases, including scrofula, tabes mesenterica, phthisis, and hydrocephalus; also 10 from thrush, 14 from brain diseases, and 22 from diseases of the stomach, kidneys, and skin. Diseases of the respiratory organs, however, caused 22 less deaths in the two weeks of high mortality than in the two which ended on June 14 and preceded the hot weather. From the foregoing facts, it may be concluded that exceedingly hot weather is very fatal to the lives of infants under one year of age, and although diarrhoea is the ostensible cause of death in a very large proportion of cases, the general tendency of the hot weather is to very largely increase the mortality among all infants of a weakly constitution, whether or not they suffer from any distinct form of disease, either hereditary or constitutional. . . . How far this excessive infant mortality resulting from hot weather is due to ignorance and neglect of the proper treatment and diet of infants, and how much to the unfavourable condition as to pure air and diet under which a large proportion of the working classes suffer, it is impossible to determine; but it is not difficult to prove that the effect of hot weather upon the infants of the upper and middle classes is very slight, whether directly through diarrhoea or indirectly from other diseases. In the registration sub-district of Mayfair, for instance, the deaths registered in the last two weeks of July showed no increase in infant mortality upon that which prevailed in the two weeks ending June 14, whereas in the neighbouring sub-district of St. John, Westminster, inhabited principally by the labouring classes, the deaths of infants under one year of age rose from 2 in the two weeks ending June 14, to 20 in the last fortnight of July.

“This wholesale loss of infant life every summer in our large towns is undoubtedly preventable, and it is only fair to expect that the subject will command the fullest and most earnest attention of the increasing number of medical officers of health in urban sanitary districts.”

The *British Medical Journal* makes these observations on the increased infant death-rate in London, last July:—“The great bulk of the deaths.

occurred, therefore, amongst infants and young children, for whom milk forms, or should form, the staple diet; and we believe that the present high death-rate may, in the main, be traced to the badness of the milk supplied to London. If diarrhoea be produced at this season by fruit, as is commonly supposed to be the case, the disease is, at any rate, not of a serious kind, for not a single death of any person between twenty and forty years of age from diarrhoea was last week recorded in London. In the case of infants, too, diarrhoea is much more prevalent amongst those who are hand-fed than those who are suckled; and many a child attempted to be brought up by the hand has been apparently rescued from death, simply by the 'bottle' being changed for a wet-nurse. Where the mother cannot suckle, and where neither good cow's milk nor a wet-nurse can be obtained, the Swiss condensed milk will be found of very great use in many obstinate cases of diarrhoea. But, after all, why should not the milk supplied to Londoners generally be pure and wholesome? After the prosecutions of dairymen under the Adulteration Act, commenced last year, there was a meeting of the masters engaged in the trade, at which it was agreed to raise the price of milk one penny per quart, upon the clear understanding that water should not for the future be added to the milk, and that there should be from that time no adulteration of any kind. The public readily acquiesced in this proposition, as it was considered to be reasonable. For a short time, also, London milk seemed to be improved; but now it would appear to be almost as bad as ever. The extra penny per quart is still charged, but the liquid sold is of any but first-rate quality. It is too often deprived most unmistakably of cream, is nearly sour when sold, and has received an addition of water. There have been some convictions of dairymen lately, in cases where the milk was watered to the extent of 20, 30, and even 40 per cent.; but we believe the penalties for offences against the law have not been sufficiently enforced. Evil-doers must be terrorised into a more legitimate way of trade, as other influences appear to be of little avail. Let the medical officers of health bestir themselves, and proceed against all the dealers in adulterated milk. The lives of hundreds of little helpless children are at stake. On their behalf we write."

Prevention of Infant Mortality.—With regard to the prevention of excessive infant mortality, the Obstetrical Society of Philadelphia has drawn up, and "recommended to the thoughtful attention of the mothers in Philadelphia," a set of rules for the management of infants during the hot season. The rules, which were quoted in an unrevised form in our "Report on Public Health," November, 1873, and which were adopted by the Society at a meeting held on March 5th, 1874, are as follow:—

"RULE 1.—Bathe the child once a day in tepid water. If it is feeble, sponge it all over twice a day with tepid water, or with tepid

water and vinegar. The health of a child depends much upon its cleanliness.

“ RULE 2.—Avoid all tight bandaging. Make the clothing light and cool, and so loose that the child may have free play for its limbs. At night undress it, sponge it, and put on a slip. In the morning remove the slip, bathe the child, and dress it in clean clothes. If this cannot be afforded, thoroughly air the day-clothing by hanging it up during the night. Use clean diapers, and change them often. Never dry a soiled one in the nursery or in the sitting-room, and never use one for a second time without first washing it.

“ RULE 3.—The child should sleep by itself in a cot or a cradle. It should be put to bed at regular hours, and be early taught to go to sleep without being nursed in the arms. Without the advice of a physician, never give it any *Spirits, Cordials, Carminatives, Soothing Syrups, or Sleeping Drops.* Thousands of children die every year from the use of these poisons. If the child frets and does not sleep, it is either hungry or else ill. If ill, it needs a physician. Never quiet it by candy or by cake; they are the common causes of diarrhoea and of other troubles.

“ RULE 4.—Give the child plenty of fresh air. In the cool of the morning and evening, send it out to the shady sides of broad streets, to the public squares, or to the park. Make frequent excursions on the rivers. Whenever it seems to suffer from the heat, let it drink freely of ice-water. Keep it out of the room in which washing or cooking is going on. It is excessive heat that destroys the lives of young infants.

“ RULE 5.—Keep your house sweet and clean, cool and well aired. In very hot weather let the windows be open day and night. Do your cooking in the yard, in a shed, in the garret, or in an upper room. Whitewash the walls every spring, and see that the cellar is clear of all rubbish. Let no slops collect to poison the air. Correct all foul smells by pouring carbolic acid or quicklime into the sinks and privies. The former article can be got from the nearest druggist, who will give the needful directions for its use. Make every effort yourself, and urge your neighbours to keep the gutters of your street or of your court clean.

“ RULE 6.—*Breast-milk is the only proper food for infants.* If the supply is ample and the child thrives on it, no other kind of food should be given—while the hot weather lasts. If the mother has not enough, she must not wean the child, but give it, besides the breast, goat’s or cow’s milk, as prepared under RULE 8. Nurse the child once in two or three hours during the day, and as seldom as possible during the night. Always remove the child from the breast as soon as it has fallen asleep. Avoid giving the breast when you are over-fatigued or over-heated.

“ RULE 7.—If, unfortunately, the child must be brought up by hand, it should be fed on milk-diet alone—that is, warm milk out of a nursing bottle, as directed under RULE 8. Goat’s milk is the best, and, next to

it, cow's milk. If the child thrives on this diet, *no other kind of food whatever should be given while the hot weather lasts.* At all seasons of the year, but especially in summer, there is no safe substitute for milk if the infant has not cut its front teeth. *Sago, arrow-root, potatoes, corn-flour, crackers, bread, every patented food, and every article of diet containing starch, cannot and must not be depended on as food for very young infants.* Creeping or walking children must not be allowed to pick up unwholesome food.

"**RULE 8.**—Each bottleful of milk should be sweetened by a small lump of loaf-sugar, or by half a teaspoonful of crushed sugar. If the milk is known to be pure, it may have one-fourth part of hot water added to it; but, if it is not known to be pure, no water need be added. When the heat of the weather is great, the milk may be given quite cold. Be sure that the milk is unskimmed; have it as fresh as possible, and brought very early in the morning. Before using the pans into which it is to be poured, always scald them with boiling suds. In very hot weather, boil the milk as soon as it comes, and at once put away the vessels holding it in the coolest place in the house—upon ice if it can be afforded, or down a well. Milk, carelessly allowed to stand in a warm room, soon spoils, and becomes unfit for food.

"**RULE 9.**—If the milk should disagree, a tablespoonful of lime-water may be added to each bottleful. Whenever pure milk cannot be got, try the Condensed Milk, which often answers admirably. It is sold by all the leading druggists and grocers, and may be prepared by adding to six tablespoonfuls of boiling water without sugar, one tablespoonful or more of the milk, according to the age of the child. Should this disagree, a teaspoonful of arrow-root, of sago, or of corn-starch to the pint of milk may be cautiously tried. If milk in any shape cannot be digested, try, for a few days, pure cream diluted with three-fourths or four-fifths of water—returning to the milk as soon as possible.

"**RULE 10.**—The nursing-bottle must be kept perfectly clean; otherwise the milk will turn sour, and the child will be made ill. After each meal, it should be emptied, rinsed out, taken apart, and the tube, cork, nipple, and bottle placed in clean water, or in water to which a little soda has been added. It is a good plan to have two nursing-bottles, and to use them by turns.

"**RULE 11.**—Do not wean the child just before or during the hot weather; nor, as a rule, until after its second summer. If sucking disagrees with the mother, she must not wean the child, but feed it in part, out of a nursing-bottle, on such food as has been directed. However small the supply of breast-milk, provided that it agrees with the child, the mother should carefully keep it up against sickness; it alone will often save the life of a child when everything else fails. When the child is over six months old, the mother may save her strength by

giving it one or two meals a day of stale bread and milk, which should be pressed through a sieve and put into a nursing-bottle. When from eight months to a year old, it may have also one meal a day of the yoke of a fresh and rare-boiled egg, or one of beef or mutton-broth into which stale bread has been crumbed. When older than this, it can have a little meat finely minced; but even then milk should be its principal food, and not such food as grown-up people eat.

Dr. Van Wyck, in a paper on "Infantile Hygiene,"^a gives a great deal of sound practical advice on the same subject. He says:—"An infant is scarcely washed and dressed, ere the question is asked, 'Doctor, what shall we give the baby to eat?' Really one would suppose that the helpless little being had made its *entrée* into this world in a famished condition, and not a moment was to be lost in relieving the terrible pangs of hunger, and averting impending death. Within the memory of some of us, the custom prevailed to a considerable extent of giving a dose of castor-oil a few hours after birth to the infant; and the physician who was bold enough to interdict so absurd and injurious a procedure was regarded by those compendia of infantile therapeutics and necessities, the nurse and grandmother, as knowing very little, if anything, about babies. Happily for the child, that practice seldom prevails now, but, in its stead, the less baneful, though by no means harmless sweet oil and anise seed tea is suggested to clear the little one out. If to clear it out of the world is the intention, why then there might be some show of reason in giving the drench.

"On the birth of a child, the breasts of a mother rarely contain any milk, which, to my mind, is the strongest evidence that the child does not require that kind of nourishment. If such was not the case, the same provision would be made for it as for the lower mammals, for whom a bountiful supply is furnished from the maternal font at the moment of birth. There is, however, as we all know, or ought to, a viscid yellowish fluid, the colostrum, in the human breast at the period of child-birth, which not only contains all that is necessary for the nourishment of the infant until the lacteal secretion occurs, but also expedites the discharge of the meconium. An hour or two after birth, the child should be put to the breast, unless the labour has been a tedious or severe one, and the mother needs rest to recuperate her exhausted energies, when it can be deferred for six or eight hours without detriment to the child. Should the amount of colostrum not be sufficient to satisfy the demands of the infant, a little sweetened water is all that is required until the flow of milk, but should this not occur at the proper period, fresh cream diluted with boiling water in the proportion of one part of the former to ten of

^a Transactions of the Medical Society of the State of California during the years 1873 and 1874, p. 66.

the latter, with the addition of a sufficient quantity of sugar of milk. It not unfrequently happens that the mother affords too little of the lacteal fluid, or it may be none at all. This truly unfortunate state of affairs is often a source of as much annoyance to the medical attendant as to the mother."

"For twenty years I have discountenanced the use of diluted cow's milk, substituting properly diluted and sweetened fresh cream, solely on the ground that a nearer approximation to women's milk can be effected than in any other way known to me ; and hence there is less liability to produce injurious effects.

" Apart from this, I think there are other good reasons for using only the cream, which rises after the milk has stood some twenty-four hours. Very much of the milk sold in our cities and towns is adulterated in various ways, and in many instances when such is not the case, the cows are improperly fed and cared for. By using the cream only, we avoid in the first instance the adulterating materials, and in the second, we are enabled to give a less quantity of a diseased or abnormal secretion.

" Having procured a quart or more of the purest attainable milk, set aside for twenty-four hours, and then skim off, but not too closely, the cream. As the cream of cows differs in richness from a number of causes, it is impossible to give in figures the amount of water necessary for the proper dilution, I therefore direct the cream to be diluted with boiling water to an extent that will make it as near the richness of the mother's milk at that period as possible, adding enough sugar of milk to bring it up to the natural standard of sweetness. I prefer the *sac. lac* to cane or beet sugar, for the reason that should acidification of the food occur, we have in the former lactic, whilst in the others acetic acid as a result. To be as explicit as possible, I should say that with the cream afforded from the milk ordinarily served to purchasers, the following formula will be found very nearly correct :—

	Cream, Part.	Boiling Water, Parts.	Sac. Lac, Parts.
To a child one week old, in good health,	1	11	25
Two weeks old, - - - - -	1	10	25
Three to four weeks old, - - - - -	1	8	25
One to two months old, - - - - -	1	7	25
Three to four months old, - - - - -	1	6	25
Four to six months old, - - - - -	1	5	25
Eight to ten months old, - - - - -	1	3 to 4	25

" Should this prove too strong for the child, it will be necessary to make a further dilution with, if needed, an alkali to prevent acidification. A certain amount of lime water is generally ordered to obviate this result, but experience has proven to me that the bicarbonate of potassa is preferable, for the reason that, as an antacid, it is equally efficacious, while it prevents the formation of so solid a curd, and thereby renders it

more soluble. It should be added to the food in the proportion of one quarter of a grain to each fluid ounce, and if curd is found in the excreta, the amount should be doubled. It may, and often is asked, why use the cream only? To my mind, the reason is perfectly obvious. It contains all of the salts of the milk; most, if not all the butter, while the excess of casein has been deposited or left in the residuum.

"We are frequently called upon to prescribe for infants with whom the mother's milk does not agree. This may arise from different causes. It may be owing to the character of secretion, or attributable to an abnormal condition of the digestive organs of the child. If to the former, either a wet nurse must be substituted, or, if that is impracticable, then artificial food must be given. Should the latter be the case, it will be necessary to dilute the mother's milk to that degree which can be properly assimilated. Cases occur in which this fails, and it becomes necessary to feed the infant on whey, which is readily made by putting a piece of rennet in the milk, which (the whey) should be sweetened with sugar of milk. Should this prove too strong, as it sometimes does, it should be weakened with boiling water. This character of food is often objected to by both mother and nurse as not affording sufficient nourishment. But if the child does not lose weight and is doing well, why make any immediate change? As to the length of time this course should be persevered in, I say, just so long as any other food fails to be digested. The strength of the food should be gradually increased according to the power of assimilation. We have all repeatedly had cases that taxed our best energies to find an article of diet which would agree with the infant, often failing in the best directed efforts. In extreme cases I have successfully used the expressed juice of raw or very rare beef; giving the child from one-half to two or three teaspoonfuls, more or less, *pro re natâ*; and had the whole body with exception of the face rubbed with either sweet or cod-liver oil. The advantage of applications of oil is too obvious to dilate upon. Mothers often ask when they can change the food. My reply to this is, as long as the child is improving in strength and growth, and all the bodily functions are properly performed, and there be no other reasons for doing so, let well enough alone, and more especially so if the child is teething. A very common cause of gastric and intestinal derangement in infants is solely attributable to the ignorance of the mother, who can imagine no other cause than hunger for the fretfulness of the child, and consequently gives it the breast or bottle whenever it cries. Regularity in feeding is as absolutely necessary for the well-being of the child as its food. A child of from one to two weeks old should not be allowed to take the breast or other food oftener than once in an hour and a half when awake, gradually increasing the time to every three hours, giving the stomach not only time to fully digest the food, but allowing a period of rest from its labour. In my opinion, as

common a cause as almost any other of colic, is insufficient warmth, and in the majority of cases an examination will disclose a coldness and dampness of the child's feet and abdomen. A bottle of hot water placed at the foot of the cradle or crib will prove as great a source of comfort to the mother as the child. Much might be said on the subject of the fashion of infants' dress, and I think that physicians are not a little to blame in this matter, as their opinions on all matters pertaining to the welfare of children are respected and acted upon almost invariably by mothers, who, as a general rule, are ready and willing to make any sacrifice for, and do anything which will add to the welfare and comfort of the 'baby.'

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS,
IN RELATION TO
MEDICINE, SURGERY, AND HYGIENE.

Lithoclast, with Lateral Movements. By DR. A. AMUSSAT.

THIS instrument, constructed by M. Collin, of Paris, after the design of Dr. Amussat, has the form of the ordinary screw and hammer-lithotrites, but differs from them in the teeth of the beak, which, being flat and smooth at the edge (Fig. 2), allow the necessary search for the stone to be made without inflicting injury on the vesical mucous membrane. Further, by means of a catch (B B', Fig. 1), capable of being secured, if so desired, into the square portion of the female blade, the male blade can be made immovable; or, by withdrawing it, lateral movement, to a certain extent, is permitted on the male blade (Fig. 3), the beak of the instrument being in this way completely freed from calculous detritus.

This instrument differs from that of Dr. Vinci (Fig. 4) in the shape of its beak, and in the simplicity of the mechanism by means of which the male blade is fixed into the female blade. The shape of the beak of that lithoclast making its introduction into the bladder a matter of difficulty to the surgeon and of great pain to the patient, Dr. Amussat has given to the beak of his instrument an inclination on the stem which renders its introduction as easy and as little painful as that of the ordinary lithotrites. In effecting this modification, however, its designer has not concealed the fact that it lessens the power of the instrument, which also he reserves for the crushing of slightly resisting fragments, and especially for the later sittings in lithotripsy, when hard but comparatively small fragments should be looked for and crushed. Dr. Amussat has already employed this instrument with advantage in several of his cases.—(Adapted from the *Gazette des Hôpitaux*, 1873, p. 109.)



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

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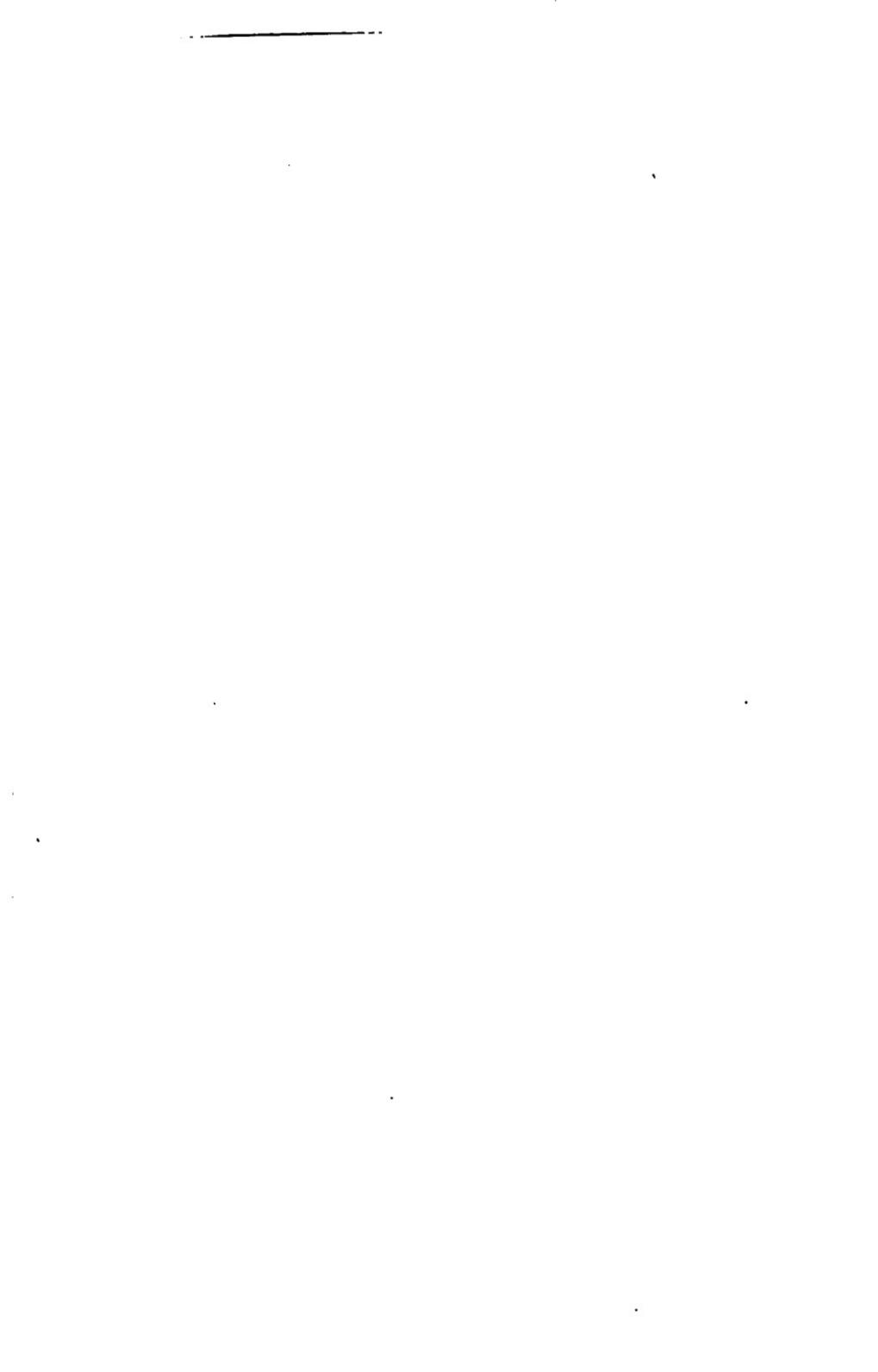
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THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

NOVEMBER 2, 1874.

PART I. ORIGINAL COMMUNICATIONS.

ART. X.—*Reports in Operative Surgery.* By RICHARD G. BUTCHER, M.R.I.A.; M.D. (*honoris causâ*) of the University of Dublin; University Lecturer on Operative Surgery; and Surgeon to Sir P. Dun's Hospital; Examiner on Operative and Practical Surgery in the University of Dublin; late Senior Surgeon to Mercer's Hospital, and Lecturer on Clinical Surgery; Ex-President of the Royal College of Surgeons in Ireland; Fellow, Licentiate, and Member of the Council of that Body, and for many years President of its Surgical Court of Examiners, &c., &c.

I.—TERRIBLE DEFORMITY OCCURRING AFTER FRACTURE OF THE THIGH-BONE; FIVE INCHES SHORTENING; RE-FRACTURE OF THE BONE FIVE MONTHS AFTER UNION HAD BEEN ESTABLISHED; THE LIMB RESTORED TO ITS FULL LENGTH; AND ALL MOTIONS PERFECT.

II.—WOUND OF THE INTERNAL CIRCUMFLEX ARTERY, AFTER ITS ORIGIN FROM THE PROFUNDA FEMORIS; PROFUSE BLEEDING, TREATED SUCCESSFULLY BY PRESSURE AT THE WOUND, CONJOINTLY WITH COMPRESSION OF THE FEMORAL ARTERY; DURING THE PROGRESS OF THE CASE, RAPID SECRETION OF PUS INTO THE LEFT KNEE-JOINT, WITH ISOLATED ABSCESSSES BENEATH THE AXILLA,

BELOW THE GROIN, AND OVER THE OUTSIDE OF THE THIGH ON THE SAME SIDE; ALL TREATED BY FREE INCISION; RECOVERY; WITH ADDITIONAL CASES CORROBORATIVE OF THE GOOD EFFECTS OF THE SPECIAL PRACTICE INculcated.

III.—LACERATION OF THE AXILLARY ARTERY, WITH RAPID FORMATION OF AN ENORMOUS BLOODY TUMOUR, FILLING UP THE ARM-PIT, AND EXTENDING OVER THE GREATER PART OF THE RIGHT WALL OF THE CHEST; WHILE THE CORRESPONDING PART OF THE BONY CASE WAS DEPRESSED CONSIDERABLY, OWING TO ITS FOURTH AND FIFTH RIBS BEING BROKEN, TOGETHER WITH FRACTURE THROUGH THE BODY OF THE SCAPULA; RECOVERY.

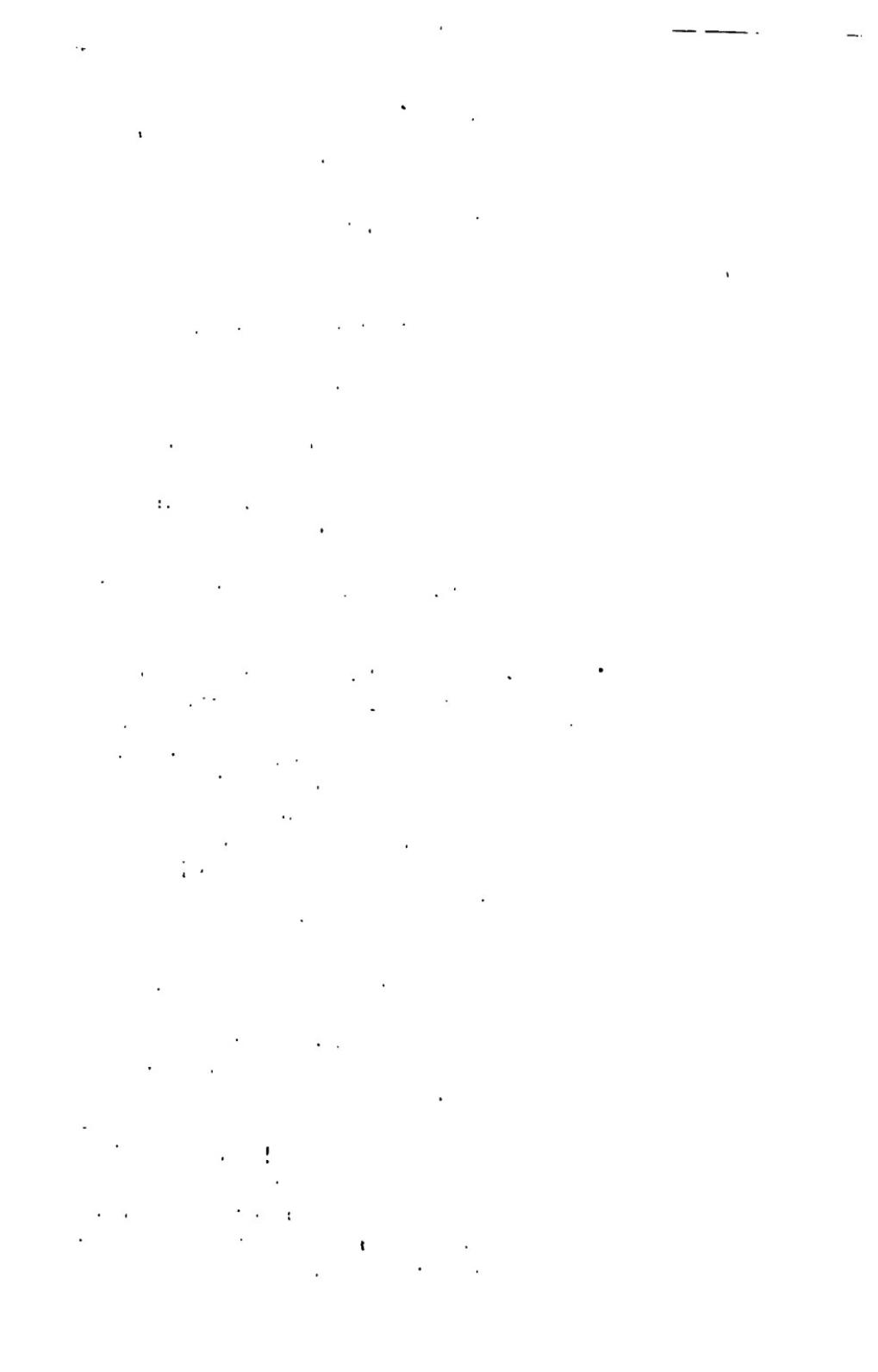
IN continuation of my "Reports in Operative and Practical Surgery," I wish to place on record the following cases. I am induced to do so for three reasons—first, from the rarity of their occurrence; secondly, from the numerous complications which attended them in their management; and thirdly, from the satisfactory results procured in each by the treatment adopted.

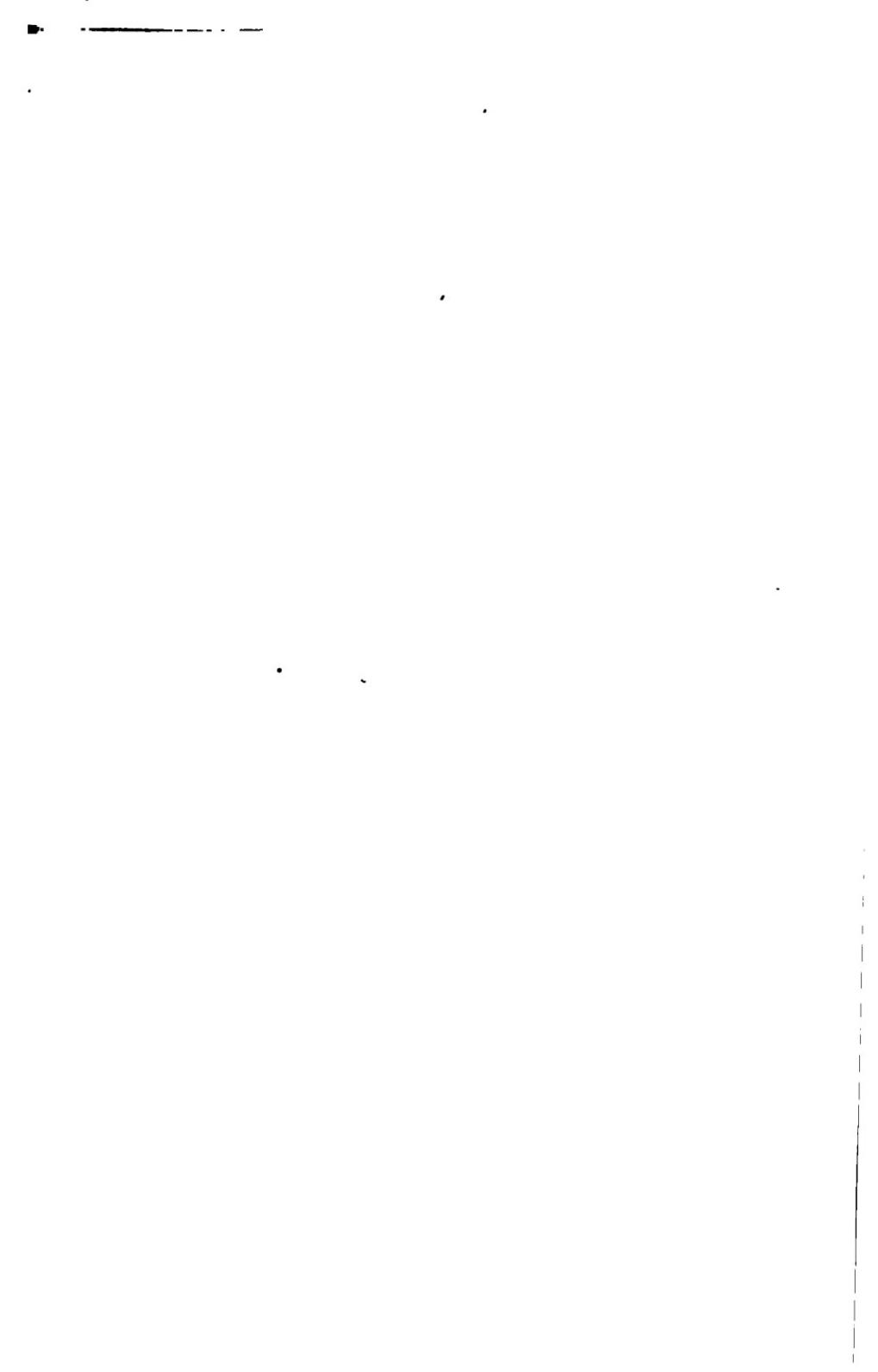
CASE I.—*Terrible Deformity occurring after Fracture of the Thigh-Bone; Five inches shortening; Re-fracture of the Bone Five Months after union had been established; the Limb restored to its full length, and all motions perfect.*

F. C., aged twenty-six years, a sailor by profession, consulted me August 17th, 1873, for a most hideous deformity of his right thigh bone, the result of fracture. The history of the case is as follows :—He stated that he had been for six weeks ashore, and after this had joined his vessel in March, 1873. On the 13th of the month he had to go aloft to unreef a sail, and after doing so, he felt nervous, and tried to hold on by the yard, but his grasp failed him, and he fell to the deck, a height of forty feet. Fortunately, in his descent he struck a rope, which considerably tended to break his fall, and so he escaped being killed. As it was, however, he sustained a bad fracture at the centre of the right thigh-bone. The vessel put back into Liverpool, and he was removed ashore, and placed under surgical advice. He said that after the accident the limb was greatly shortened and distorted, and not many hours had elapsed









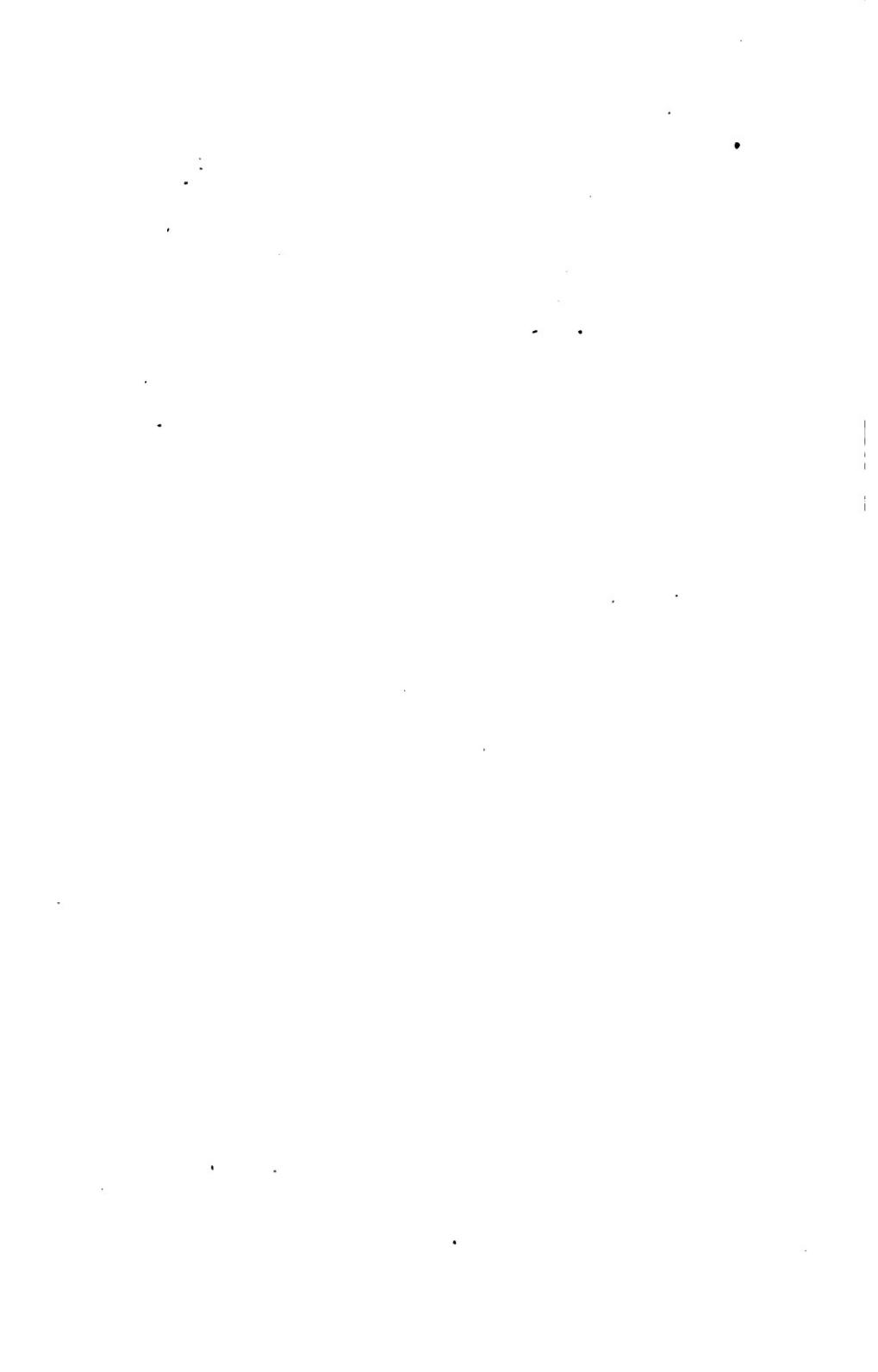
when he was placed under surgical treatment. The result of the treatment of the case at this time proves that perfect and osseous union, solid, was effected between the ends of the broken bones, and with hideous deformity. More than five months had elapsed from the time of the accident up to the period when he consulted me.

F. C. came into my study, assisted with a pair of crutches. Then merely the toes of the right foot touched the ground in the attempt at progression, though he wore a high-heeled shoe, and *with* more than *three* inches depth of cork inside. Even with this artificial aid, when he attempted to rest upon the foot, though the spine and pelvis drooped considerably on the affected side, the distorted bone was most conspicuously thrust through the trousers. Plate I. gives an accurate representation of the young man, taken from a photograph, as he stood supported on his crutches, the boot on the affected limb being similar to that on the sound one.

On stripping the young man, and placing him on his back upon a couch, and the pelvis straight, then the true amount of shortening of the limb and horrible deformity of the thigh-bone were revealed. The thigh-bone had been broken at its centre, and very nearly transversely; the upper fragment projected in front, and somewhat to the outside, while the lower was dragged a little backwards, and also outwards; while both were united in this distorted condition, and bound rigidly together at almost an acute angle, and so the formidable nature of the deformity was developed, its convexity forwards and outwards; the knee-joint was nearly five inches above the sound one, and rested on the lower third of the thigh-bone, above it; the muscles of the distorted thigh were flabby and wasted, as contrasted with the healthy limb; so also were the muscles of the calf. On measurement, the affected limb was somewhat more than four inches three-quarters shorter than its fellow: this was manifest in simple observation, and also confirmed my measurement at the knees, at the ankles, and at the heels. During these measurements great accuracy was observed in maintaining the position of the pelvis straight, so that the anterior superior spinous process of the ilium on either side was exactly on a horizontal line. I have already stated that the union was quite solid. No power that I could exert by the greatest force of my hand or weight of body gave the slightest pain, or produced the slightest yielding in the perfectly united osseous part. After most careful consideration of all the leading features of this case, I

resolved to recommend the re-fracture of the bone. I had great success in other instances, which gave me a confidence reliable upon; yet, in my whole experience, not a case so marked by deformity as the one under consideration, and detailed now. And yet, again, I admit there were many objections to this violent course of procedure—the improbability of being able to break the bone exactly where required, the terrible shock that must be communicated to the system on the disintegration of the part, the possibility of injuring the main artery either by the violence necessary or by the re-broken bone itself. Again, if even the fracture was satisfactorily effected, the obstacles to be overcome in lengthening the limb, of controlling backwards the upper fragment, and maintaining the broken ends in proper position, so as to insure a healthy vital action in the part, terminating in a permanent solid union of the bone. (Plate II. gives a faithful picture of the deformed limb, as contrasted with the sound one, accurately drawn from a fine cast taken when the man was stripped). The next thing to be considered was, how the bone was to be broken most accurately and efficiently in the most prominent part of the curve. After careful consideration I came to the conclusion that the re-fracture could be accomplished by the application of a force brought to bear through the agency of a screw, and I contrived the following clamp:—I had a large bar of steel implanted through the centre, or, rather, at the right side of a solid piece of wood, fifteen inches long, ten inches wide, and three and a-half in depth. This bar of steel was placed on the side, about two inches in depth, half an inch thick, and so vertically for about twelve inches, and then curved over the centre of the piece of wood in which it was imbedded, terminating at this point in a female screw, two inches in depth; through this played a male screw, twelve inches long, with an expanded plate on its lower end, shaped like a bell, and in which the end of the screw turned; while a strong piece of steel, six inches in length, ran through its upper and rounded head, so as to act as a lever in turning home the screw. This screw was nearly a circular one, so as to allow a more steady and gentle force being applied (Plate III. represents the clamp which I invented applied to the deformed limb). The screw being elevated to the highest point, a piece of solid wood, two inches thick, six inches long, three inches wide, well cushioned, was laid over the most convex, deformed part, and steadied so by Mr. Tufnell, while Dr. Wheeler steadied the thigh bone in its proper axis and position, the most angular and convex





part being immediately under the expanded bottom of the screw, and its cap resting on the transverse piece of wood. The patient was rapidly placed under the influence of chloroform; in a few minutes its full anaesthetic agency was produced, and the limb being steadied immovably by the assistant surgeon, I steadily and gradually screwed down my clamp. By a few turns of the lever-handle the screw was evenly and firmly brought down upon the centre of the piece of wood placed transversely; several evolutions of the screw were evenly and firmly brought down upon the centre of the piece of wood, and several additional evolutions of the screw were made before the bones yielded, and great force was used before the bone cracked, which at length it did, with a very loud noise. Forceful extension was then made at this time, and the screw worked down until the limb was quite straight and fully as long as the sound one. The limb was then at once placed in the box which I use after excision of the knee-joint. The box was so padded as to afford a steady support to the inequalities on the posterior surface of the limb; the sides, well-cushioned, were next lifted up, and the foot support applied; the buckle bands were then thrown round the box, opposite the upper, middle, and lower parts of the leg; the upper and projecting fragment of the femur was kept well and steadily pressed back, so that the upper fragment should not project forward; to guard against such an occurrence, a long pad was placed over the anterior surface of the thigh, from the ilium to below the knee; two small additional pads were laid corresponding to the same length on the outside of the fragments, so as to maintain the limb in a straight line, the upper and lower fragments in juxtaposition. All being so arranged, the anterior splint was put over the pads, and pressed down, so as to secure the normal line of the bone; the straps around were then secured; a belt was put around the body and upper arm of the outer side of the box, so as to maintain the apparatus in a straight line; in the proper axis of the sound limb. Though the pressure required to control the limb was very considerable, yet it was not complained of, being so evenly adjusted. The lower end of the box was then raised about from four to six inches, and a pillow placed beneath, so as to favour returning circulation. The bed was carefully prepared, so that it should afford a steady, even surface—two hair mattresses were placed, one over the other, upon a solid straw mattress; a folded blanket was laid beneath the sheet that covered all; the sheet was evenly, carefully tucked in, and so fastened as to prevent

any wrinkles occurring, and so becoming an annoyance to the quiet resting and sleep of the patient upon his back. A full opiate was afterwards administered, and the patient fell into a quiet sleep. The operation was performed at 11 o'clock a.m., August 28th, 1873.

3 o'clock p.m.—The patient rested exactly as I left him in the morning. No pain, limb lies steadily fixed, temperature natural, and fully up to that of the sound limb. Ordered a full opiate every sixth hour.

August 29th.—Slept well; pulse quiet. Indeed, I was forcibly struck with the absence of irritation and fever. Limb free from any annoyance; no pain from the constraint imposed; to continue the opium.

August 31st.—No pain, slept well, and limb free from pain; all deformity flattened down; no spasms or uneasiness of any kind; limbs, both same length, even by most careful measurement.

On the 4th of September I gently opened the tapes, an assistant violently pressing back the front splint, and passing my left hand under the pads from above downwards, so as to restrain back the upper fragment, an assistant then lifted the splint away; there was some slight redness over the immediate end of the upper fragment, and the end of the upper fragment tended a little outwards; the latter I was readily able to remedy by passing a small pad to its outside, between the long pad and the outer side of the box. All this time the bone was kept well back by my left hand; a couple of additional pads were then laid over the upper fragment, not extending within an inch of its end, or the discoloured integument; the long splint, well padded, was then laid on as at first, and all made secure by the four straps being buckled tight. The patient was not pained or fatigued by the ordeal through which he passed. Some wine and a full opiate were administered.

Sept. 13th.—No change worth noticing since last report, now nine days ago; he has been free from pain; slept and ate well; limb being quite easy. However, I was anxious to see that all was right, and having adopted the same precautions as mentioned at last report, I was rejoiced to see the bone well back, and to observe and feel that a considerable amount of material was thrown out about the site of fracture. The pads and splints were then secured as before.

Sept. 19th.—A good deal of œdema of the leg and foot, but no pain, however. The full length of the limb is maintained, the

temperature the same as the sound one. I inspected the broken part with the same caution that I have before described, and found union proceeding satisfactorily.

Sept. 23rd.—This day, assisted by Dr. Barton, Resident Surgeon, Sir P. Dun's Hospital, I let down the sides of the box, he keeping up extension forcibly at the ankle, while an assistant passed his hand beneath the pads and anterior splint, so as to restrain backwards the upper fragment of the broken bone; it was most satisfactory to see that the soft parts had not at all suffered from the severe pressure imposed, to secure the proper adjustment of the broken bone. The portion of integument immediately over the extremity of the upper fragment had quite recovered from the redness and irritation which it presented on a former dressing; a large quantity of callus was thrown around the broken ends of the bone; there was no pain on handling this part, and when the heel and leg were lifted upwards, the union seemed to be considerably advanced. It was most satisfactory to witness then the results of careful measurements, the pelvis being straight. The measurements from the anterior superior spinous process of the ilium to the knee, to the ankle, and to the heel, exactly corresponded on both sides. I must here mention, that the limb was so well guarded throughout, that the tender skin did not suffer from pressure. On ascertaining the condition of the parts to be in every way so favourable, I proceeded to adjust the pads, splint, and box exactly as before, the control over the upper fragment being rigorously enforced by the anterior splint and the cautious adjustment of the pads beneath it; these being secured, the bandages were next applied round the hips, and made to cross over the upper end of the anterior splint, and so prevent even the least elevation of it. During this serious manipulation the patient did not complain of any pain, a satisfactory index to the healthy changes brought about in the part.

Oct. 1st.—This morning lifted up anterior splint, let down side of box, and examined carefully the limb; the thigh bone is quite straight, and abundant callus thrown around the broken ends, and union progressing most favourably. By closest measurement the limb corresponds in length with the sound one. Re-adjusted splint, pads, and box, &c., as before.

Oct. 19th.—This morning examined carefully the united fracture; it was quite solid; the limb was as straight as the sound one. Assisted by Dr. Barton, Resident Surgeon of Sir P. Dun's

Hospital, it was lifted from the box, and I bandaged the foot and leg as far as the knee, so as to get down the œdema. I did not apply a bandage before or lift the limb from the box, lest the slightest motion might disturb the healthy process going on, and check the solid ossification of the callus. Replaced the limb in the box, with the solid pressure all around the fractured part. It was most gratifying to see, upon lifting the limb, that there was not the slightest abrasion of the soft parts or mark of undue pressure upon it anywhere; yet the force employed from the first to restrain the broken fragments and secure immobility was very great.

Nov. 2nd.—Removed the box-splint, and applied a short splint to the back of the thigh and leg. Rolled the foot and leg with a steady bandage pressure, and allowed the patient to move unrestrictedly about the bed.

Nov. 7th.—The most careful examination of the stricken limb, as contrasted with the sound one, affords the same satisfactory results, the entire length being preserved.

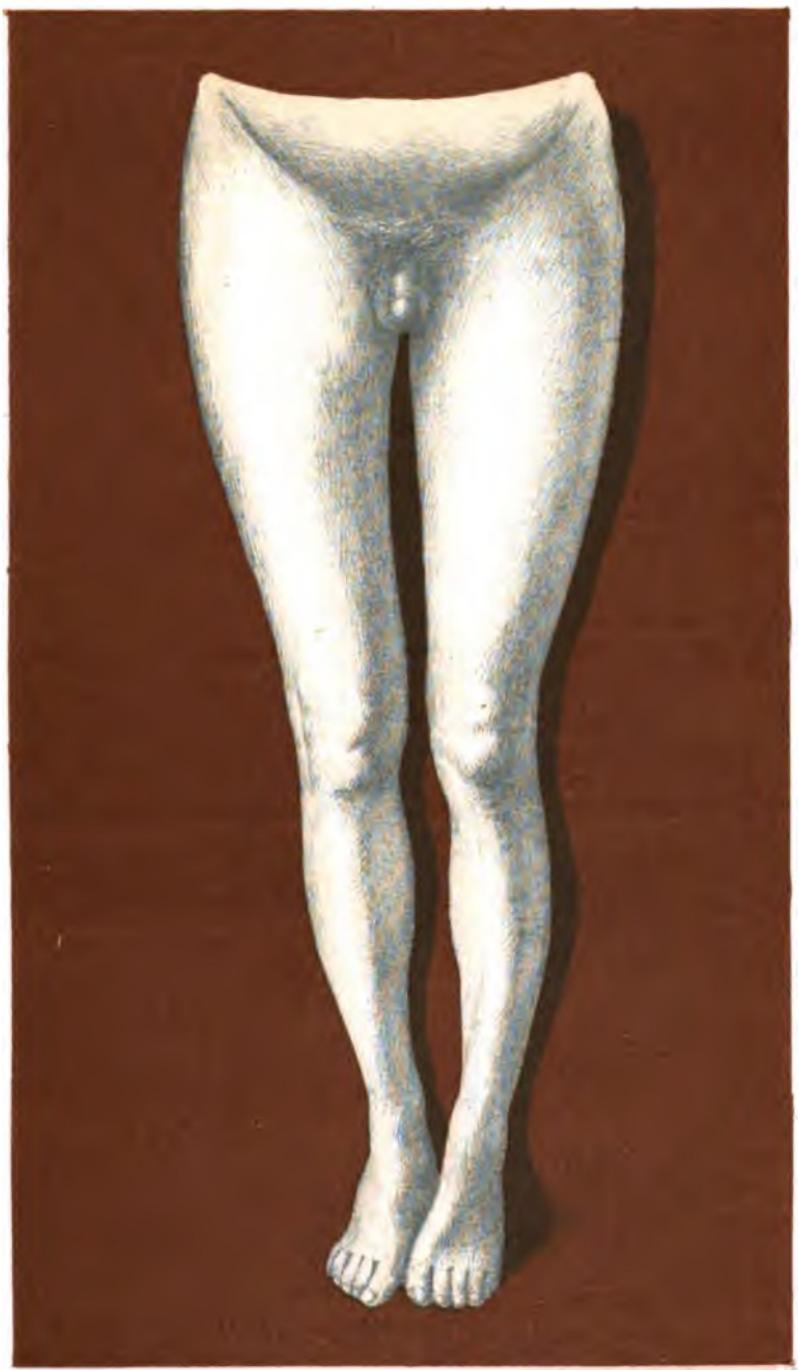
Nov. 10th.—This day removed the splint from the posterior surface of the thigh, and rolled the limb from the toes upwards, and afterwards got the patient out of bed. He stood upon the limb with *equal length* to the sound one; he rested steadily upon the broken one, and complained of no pain or weakness in it; the limb was quite solid—an exemplification of rigid practical surgery. 9 p.m.—Called to see him safely removed to bed, and undressed. No pain during the day, or consequent upon the manipulations necessary to dress and undress the patient.

Nov. 12th.—Walking about with the assistance of crutches; able to bend the knee and ankle, and to rest all weight upon the limb. It is truly most satisfactory to follow out the progressive improvement in this most remarkable case. Plate IV. gives a truthful representation of the limb after being re-fractured and cured, copied from a fine cast, taken when the man was stripped.

November 27th.—He is now able to walk without stick or crutch, and without the least halt; the injured limb perfectly restored to the length of the sound one, and free flexion and extension of the joint equally as well restored. This case may be marked down as a great triumph in surgery.

On December 20th, F. C. walked into my study without any assistance, and with scarcely any apparent halt. This latter slight defect will entirely pass away after a little time; when the spine becomes accustomed to the changed position of the members, and











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when the debilitated weakened muscles re-exert their tone and firmness in steadyng the parts and in enforcing their natural control, the patient will walk about without the least impediment.

January 4th.—I have seen my young friend, and was happy to find that his symmetrical and beautiful limb stands well the effects of exertion and travel, as he frequently walks seven and eight miles upon it, and without fatigue.

Plate V. gives an accurate representation of the young man, from a photograph which he presented to me previous to his leaving Dublin, cured.

The drawings from the casts and photographs with which I have illustrated this subject are from the truthful and clever pencil of Mr. Tomsohn, of Messrs. Forster & Co.'s, Dublin, where the lithographs were executed.

CASE II.—Wound of the Internal Circumflex Artery immediately after its origin from the profunda femoris; profuse bleeding, treated successfully by pressure at the Wound, conjointly with compression of the Femoral Artery; during the progress of the case, rapid secretion of pus into the left knee-joint, with isolated abscesses beneath the axilla, below the groin, and over the outside of the thigh, on the same side—all treated by free incision; Recovery; with additional Cases corroborative of the good effects of the special practice inculcated.

Richard B., aged twenty-four years, a tall, well-developed man, was admitted to Sir Patrick Dun's Hospital, August 18th, 1872, at one o'clock a.m. He had been in a struggle, and was struck with a knife, and bled freely before admission. On being stripped, there was discovered a wound, with clean cut edges an inch in length, in the right groin, slightly inclined to the femoral artery, and about two inches below Poupart's ligament, and at right angles to the axis of the limb, the external edge of the wound being not an eighth of an inch from the internal wall of the vessel. The man's trousers, boots, and stockings were saturated with blood, and on his admission (about ten minutes after the accident) blood was continuing to flow, and appeared to well-up from the bottom of the wound, and was of a bright colour. The man was immediately placed in a bed in the horizontal position, and the haemorrhage was arrested almost immediately in his weakened state by pressure being applied over the wound by compress and bandage.

His clothes being removed, the entire limb was bandaged from the toes up to the groin, and steadily over the wound, by a few additional turns and also additional pads. The leg was then raised to a considerable height on a plane of pillows. A large draught of opium was given. After a few moments he slept quietly. Towards morning he complained of acute pain in the groin. A large opiate was administered, which lulled the suffering. At 10 a.m., August 19th, as the dressings were bloody from a fresh flow, I removed all of them, and drew the edges of the wound steadily and gently together with adhesive straps, re-applied the pressure by compressors over the wound, and steadily bandaging from the toes up. Pulse bounding and very unsteady. Great restlessness. Ordered a full opiate, to be repeated every fourth hour. Limb considerably elevated on pillows. Pulse, 128; temperature, 99; perspiring freely.

19th.—Slept well during the night; pulse, 114, bounding. Ordered tinct. digitalis in considerable doses to lessen the heart's action; and also the opium to be continued.

20th.—Passed a good night; pulse, 100; no pain. To continue.

21st.—Passed a tolerably quiet night, but towards morning pain of a most excruciating character set in all down the limb, especially located about the hip. To continue opium, and stimulants freely. A cherry-coloured discharge from the wound. Dressing, pressure, &c., exactly re-applied.

22nd.—Had no sleep; watchful, with very painful vigilance and acute agony. On exposing the wound, its edges were gaping; a watery discharge issued from it, and the least pressure on either side created the greatest agony. Pulse again up to 120; at noon fell to 104; temperature of body, 102. To continue stimulants, opiates, and nourishment.

23rd.—No change worth noticing. To continue everything.

24th.—Restless night; great pain all down the limb from the wound; very little sleep throughout the night. Ordered calomel, gr. vi.; pulv. opii, gr. xii.; pulv. Jacob. ver., gr. vi. in pil. vi., one every fourth hour.

25th.—Slept at intervals; pain less. To continue pill, stimulants, nutriment.

26th.—Violent purging and griping set in, stopped mercury; a grain of opium every second hour; a tablespoonful of brandy after each; pain in limb greatly diminished; bled again about two ounces of scarlet blood; stopped by re-adjusted pressure.

27th.—Bowel attack quite stopped; no pain except when stirred; a grain of opium every third hour; wound looks very irritable, but not so painful. Dressed as before.

28th.—Startings in limb very troublesome, particularly when falling to sleep; perspirations copious. To continue opium, stimulants, and support. Limb elevated as before; suspended digitalis mixture, heart's action being perfectly quieted.

30th.—Complains of great pain in left knee-joint; the synovial membrane puffed out, and inordinately increased synovial secretion; lint strips, sprinkled with laudanum, laid over it. Again bleeding took place to about three ounces, controlled by pressure, ice, opium.

31st.—Discharge from wound very trifling, yet the wound does not look healthy; there is an angry red look and hard contraction of its edges, not at all consonant with healthy action, while the discharge is thin and somewhat sanguous; the surface is very irritable, and will not bear the touch.

September 2nd.—Condition but little improved; sweating most profuse. Ordered quinine and sulphuric acid, together with opium, as before, to allay constitutional irritation and procure rest.

3rd.—Woke up at 6 a.m., to stop haemorrhage from the wound; the patient was awake when it occurred, and he stopped it with the pressure of a padded key, which was left beside him for the purpose until aid was procured. The amount of blood lost was about six ounces, suddenly, of a bright scarlet colour. The leg and thigh were re-bandaged; a four pound weight was placed over compressors resting on the wound and above it, limiting the supply not only to the wound, but prohibiting its course immediately above it. At this time the haemorrhagic tendency was up; the digitalis mixture was again had recourse to, and ice to allay the patient's thirst. I visited the patient again in the evening, and as there was some discoloration of the dressings by blood, I removed everything. The surface of the wound seemed anything but healthy. I washed its surface over with a 20 gr. solution of nitrate of silver. I then rolled the limb carefully from the toes upwards to above the wound, having dressed it with mild ointment, and applied suitable compresses upon it sufficient to control any bleeding from the lower end of the vessel. I next brought direct pressure to bear on the femoral artery just as it passed off the pubis by the compressor, which I have used successfully in aneurism before now. The current was very nearly altogether obstructed in the main trunk, and so the weight of the column of blood was

removed from the wound, and the upper end controlled. The limb was supported on pillows, and elevated as before. I depended then for the supply of blood to the limb from the numerous anastomoses which surround the hip on all sides. The constitutional treatment continued as before.

4th.—No return of the bleeding, but great constitutional disturbance from the rapid secretion of matter into the left knee-joint; the patella is projecting, the lateral walls of the joint bulging out, and the structures above the patella considerably elevated. Co-existing with this local affection, the man had incessant and severe shivering, sweating profusely after. Pulse, 125; tongue red in centre. Ordered bark and opium to be continued, and opiate stupes over the inflamed joint.

5th.—The wounded limb rests quietly, but suffering intense agony in the left knee-joint; the constitutional symptoms also were grave in their character. Tongue very small and fiery red; pulse, 130, very feeble; frequent rigors, sweating, subsultus; incoherent rambling through the night; floccitation. The constitutional symptoms were now of such a nature, and so severe, that a bold measure must be adopted to save life; so I decided on laying freely open the left knee-joint, and letting out the purulent matter at once. I have before detailed cases of a similar nature where I successfully pursued this practice. A large stimulant being administered, I freely laid open the joint on its inner side, carrying the incision freely upwards through the synovial sac beneath the extensors, and so allowing a very free exit to the matter; considerably more than a pint was evacuated; some slight traces of blood streaked and coloured the matter, which was not fetid. The limb was then rolled with a flannel bandage from the toes up, giving a moderate support to the flaccid joint, and leaving, by the proper adjustment of the turns of the bandage, the incision open; a slight layer of lint was laid in about an inch of the wound; the limb was then slightly elevated on pillows. Stimulants, bark, nutriment, and opium to be freely given.

6th.—Had a good deal of sleep, yet it was unequal; slight jactitation; dressed the wound in the right thigh; applied caustic solution; drew edges together with adhesive straps, and then placed a couple of wide bands of lint over the wound, and sustained them by wide straps of soap plaster; placed the compressor over the artery beneath the ramus of the pubis; the left knee and limb allowed to remain quiet; discharge free from the wound; pulse

better, and constitutional irritation greatly relieved by the operative measures of yesterday.

7th.—Had a quieter night; not so much rambling in sleep; floccitation less; pulse, 100; has not been sweating at all to the same extent; shivering not so severe as on yesterday; tongue dry and hard; to continue bark mixture, sedatives, and stimulants abundantly as before.

Sept. 8th.—Had a quieter night; floccitation and rambling diminished; pulse fuller, 100; sweats not so great; tongue not so red; able to take large quantities of beef-tea, bread, &c., and stimulants to twelve ounces of brandy; temperature of swollen joint not so high; the thigh, however, is greatly swollen, and large veins over its surface. The pain greatly lessened since the free incisions, and but little matter now escapes, though wound strictly kept open. The wound inflicted in the right groin gives no uneasiness, and the dressings have not been disturbed for the last forty-eight hours; a very small current of blood let through the femoral. To continue opium in the same large and repeated doses, quinine mixture, nourishment, and stimulants.

Sept. 9th.—Better somewhat in strength, &c.; no bleeding. To continue everything.

Sept. 10th.—Re-dressed the wound in the right limb; it has not much life about it. Pulse, 100, very feeble; sweating profusely; extraordinary emaciation. The left limb is more swollen, and the joint structures behind the femur thickened by persistent inflammation; carefully re-bandaged the left limb from toes upwards, leaving the wound communicating with the joint free, so that all discharges secreted should have ready egress. The discharge is greatly diminished, and no pain referred to the part. To continue the opium as steadily as before.

Sept. 12th.—The patient is weaker, visibly; the wound in right thigh going on so far favourably; no return of blood, thanks to the arterial compressor so steadily holding its place, and fulfilling all the intentions required of it; sweats not so long; raving at night and jactitation not so violent; the left limb and knee-joint free almost from pain, discharge healthy pus; veins moderate; to continue everything; sixteen ounces of brandy, eggs, and beef-tea, and also a chop, which the patient asked for this day.

Sept. 13th.—Seems more sunken; sleep very disturbed; jactitation most violent, constantly screaming out. Pulse, 128; bathed in sweat; wound in left knee discharging fairly; no return of

bleeding or annoyance from right limb; opened a small abscess in left leg. To continue large quantities of brandy; opium every third hour; beef-tea as constantly as can be taken.

14th.—Had some sleep; great agony in feet checked; pain in knee greatly diminished; pulse down, 98; soft, clammy, cold sweats gone; dressed the wound in right groin, which is still very dry in secretion. He passed some blood by bowels. Rolled the limb afresh from foot upwards; drew edges of the wound together with adhesive straps, and thin compresses over the wound, not wide, with long straps of adhesive plaster to keep them down with considerable force. Next continued roller upwards on the thigh round the pelvis, making pressure on the pad in the groin, and most effectually. These means being re-adjusted, and pillows supporting the limb, placed the arterial compressor as before, and brought the screw and its pad to bear upon the femoral artery, just over the ramus of the pubis; the pressure, as before mentioned, lessening the weight of the column of blood through the femoral vessel, but not obstructing it entirely. Pulse over dorsum of foot very faint, also scarcely perceptible behind the internal malleolus. To continue wine, brandy, and nourishment; the quinine in pill, and a grain of opium every fourth hour. The left leg greatly improved since laying open the small abscess, and the swelling, sense of tightness, so grievously complained of, gone. Warm opiate stupes still applied over the open joint, and with the most soothing relief.

15th.—Countenance very sunken, yet had more sleep; eats and drinks all he gets; tongue not so red; jactitation just as severe; when the patient goes off to sleep he is bathed in perspiration; compress steadily maintained over the femoral vessels; the wound looks more healthy, and is filling up; left knee, thigh, and leg, much as at last report; the opiate stupes to be continued; the purulent discharge not very great from either wound, and whatever is secreted readily escapes, owing to the peculiar way in which the bandage is arranged round each opening. To continue the grain of opium every fourth hour; the large supply of brandy, broths, &c., as before.

18th.—Very little change constitutionally; sweating profusely, wanders in sleep, and at the same time jactitation as bad as ever; the wound on the right thigh doing well; the limb still rolled from the toes upward, and the compressor maintained over the femoral artery; no return of bleeding; the joint greatly reduced in size;

a free escape of all secreted matter being secured through the wound; the opiate stupe over the joint where exposed, and the entire limb rolled from the toes upwards. To continue opiates, stimulants, &c.

19th.—A fresh abscess, about the size of a large walnut, formed near the left groin; at once opened it, and let out about two ounces of apparently healthy pus.

22nd.—The wound in the right groin nearly healed, and the discharge from the wound in the left limb considerably diminished. He takes all his food—quantities of broth, eggs, milk, brandy, and opium—yet the man is wasting to a skeleton.

25th.—The wound in the right groin altogether healed, so now laid aside the compressor; bandaged lightly the entire member.

On the 26th, had to open a small abscess near the left arm-pit; the knee-joint, which was laid open, as well as the abscess near the groin, secreting but little pus. Carefully bandaged the entire limb from toes upwards, allowing any matter that might be secreted to escape by the wound. The wound along the inside of the knee and thigh is healed throughout the greater part, about an inch in its centre being kept open by a few shreds of lint. The emaciation of the man is most astonishing, although he takes enormous quantities of nutriment. To continue opium.

29th.—The patient awoke this morning, suffering, as he said, the most excruciating pain along the entire left tibia. There was the greatest tenderness all along the periosteal membrane; the entire surface was covered over with a thick layer of extract of belladonna and watery extract of opium, and a hot stupe over all; limb placed on its posterior surface, and elevated towards the heel. The discharge from the knee-joint is not more than half an ounce, and that from groin very little more. The slightest motion of the limb occasions the greatest suffering; it is steadied in its straight and elevated position by sand-bags placed along either side of it. To continue support and stimulants abundantly, and a grain of opium still, every fourth hour; fifteen grains of bromide of potassium at bed time.

October 4th.—Since last report there has been no change in his treatment, and he has much improved; pain along tibia gone. To continue everything.

15th.—The patient is gradually gaining strength; not more than a teaspoonful of healthy pus from the wounded joint, and the abscess that formed beneath the arm-pit and at the groin are

healed up. A large reddish spot has appeared on the outer side and below the left knee—very painful, evidently a fresh abscess; opiate stupes over it by day, and a poultice at night; stopped the bromide of potassium, which did good service. To continue the opium, support, and stimulants as freely as ever, also the application along the tibia. I must again observe the emaciation of the man is the most remarkable thing of the kind I have ever witnessed; literally he is reduced to skin and bone, and his face is truly painful to look upon. His chest is sound, his tongue has lost its redness, and the pulse its rapidity and feeble current, and his sleep and appetite are both good.

17th.—Improved in every respect; to continue medicines, stimulants, and support. For several days back the right leg has been gradually flexed both at the hip and at the knee, and retained so over pillows. This attitude occasioned great pain at first, but it is now gradually subsiding. The wound continues solid, and free from pain; the femoral artery beats very feebly along its outer edge; opened the abscess on the outer side and below the left knee, and let out about an ounce of pus.

Oct. 25th.—Better in every respect; the discharge from the knee is not more than a teaspoonful, and the walls of the abscess recently opened quite contracted; the acute periosteal pain of the leg and ankle greatly lessened; the sweats have entirely ceased; his pulse is much stronger and more steady; he has regained the power of flexing and extending the right foot, and also considerable motion in the right knee, after the restricted manner in which it was kept for weeks. To continue one grain of opium and one of quinine, three times a day. Six ounces of wine and six ounces of brandy daily.

Dec. 20th.—The patient remains almost stationary, and though suffering no pain now, and scarcely any discharge from the joint or abscesses, yet he is not pulling up flesh. The man slowly, almost imperceptibly, gained a little flesh towards the end of February. Now, at this time he slept quietly, partook largely, as from the first, of nutriment and stimulants, the opiates being discontinued for some short time back; the joint and abscesses were all healed up, and he, in fact, was only struggling into life. I considered change would be advantageous, and he was sent to a Convalescent Home on March 3rd, 1873, where he had the most salubrious air and nourishment, and care of the best description. However, on the 26th March he was re-admitted, as a small abscess had formed

towards the outer part of his left thigh. After a few days the abscess was opened, and half an ounce of pus let out. At this time I endeavoured by gradual force to bend the left knee and ankle, which were rigidly stiffened, the knee perfectly straight. This was a very slow and painful process. After a few days the abscess was healed up, and the man was allowed to move about, on crutches, with assistance. Finally, he was dismissed cured from the hospital May 3rd, 1873, a period of nearly nine months, after surviving the serious accident which threatened his life, with complications of the deadliest kind—pyæmia in its most aggravated form, purulent effusion into the left knee, with isolated abscesses, all requiring free division for the escape of fluids, the reparation of the parts, and the mitigation of the constitutional suffering.

There are two great surgical problems worked out in the history of this case. First, the management of the large wounded artery deep in the thigh, just within the line of the femoral vessel, refusing to be healed up by the general pressure applied to the limb, and directly to the wound, favoured by position; yet by the addition of compression on the main trunk, above the wound, all further flow was prevented, the artery became sealed up, and the wound healed.

Every practical surgeon knows the difficulties to be encountered in attempting to secure the cut ends of a divided artery in a deep, narrow wound, the very dilatation of the wound endangering other vessels, and increasing difficulties, more particularly when the injury lies close to a large trunk, and in the vicinity of where numerous vessels pass from it, and where important nerves are situated. No surgeon will hesitate about the propriety of tying both ends of a divided artery when it can be readily got at, and when the anatomical relations to it can be defined; but when a knife has been thrust deep into a limb in the proximity of large vessels, and when blood wells up rapidly, showing that some considerable-sized artery has been cut, I would warn the surgeon to pause before he dilates the wound, and would suggest a trial of the treatment which I have advocated in the foregoing pages. In my work on "Operative Surgery" I have given many instances where wounded arteries were cut down upon under great difficulties, and tied successfully, yet in cases such as I have now described I think the line of treatment applied to it the most scientific, and likely to ensure success. I would strongly recommend the same mode of practice in cases of secondary haemorrhage after amputation—I have

several times employed it, and with the happiest results. The following case affords a good illustration of its efficacy and benefit:—On the 12th November I amputated the thigh. The case was a very urgent one, and I wanted not to lose a tablespoonful of blood. I performed in this instance the circular method. The patient was under chloroform; I swept the knife rapidly round and turned up the skin; I cut through the muscles partly obliquely, and divided all round the periosteum; all retracted, the bone was sawn; the main artery was carefully ligatured, and the minor vessels quickly tied, so great was the vascularity from long continuance of disease of the knee-joint; a ligature was placed around the leg, just before the incisions, so as to prevent any regurgitant flow from below; the wound was rapidly dressed, and the patient woke quietly from her sleep under chloroform, and was not aware that the operation had been performed. Some time after startings of the limb of the most terrific character set in, which were only quieted by very large and repeated doses of opium; it is reported that on the 13th, the 14th, and 15th, nothing could be more violent than the jerking of the stump, though fastened upon a pillow; yet it, too, was lifted up almost vertically. At this time the patient was taking, and had been taking, sixty drops of Battley's sedative every third hour, day and night. On the 16th I dressed the wound, the patient being placed under the influence of chloroform by Dr. Bennett. Report given on to-day.—The wound looks very healthy; no tension; a large portion is united; spasms so violent that I injected into the thigh, near the groin, some of the following preparation of morphia:—

R. Aquæ distill., 3j.
Acid acet., gutt. v.
Acetatis morph., gr. 5.
M.

With a very fine syringe I injected under the skin eight minims of this fluid, according to the minim scale marked upon it. As I have observed frequently in other cases after its injection, so likewise in this instance, a little nausea followed, which was evidenced in seven minutes; the acute pain was subdued, and the spasms moderated. This treatment had frequently to be resorted to, as well as the internal administration of large doses of Battley and abundant stimulants, with most nutritious broths, &c., until the 20th, when there was rapid secondary arterial haemorrhage, which most

fortunately occurred when I was in the room. While talking to the patient she suddenly exclaimed, "There is something warm and wet about my limb." On throwing down the clothes a large quantity of fluid arterial blood was visible. I at once compressed the femoral artery at the groin, and arrested its flow, and having procured assistance, elevated the stump, and fastened a nine-pound weight over the artery, taking the place of my fingers. The weight was tightly bound down with considerable force by a bandage passed round the thigh and loins in a figure of 8 form. All the constitutional evidences of an haemorrhagic tendency were present—a bounding rapid pulse, great anxiety and restlessness, flushed face, brilliant eyes, severe pain in the stump, with violent spasms and rapid jerkings. In addition to the weight over the femoral artery, I at once screwed down gently the tourniquet, to support its effect. The stump was raised upon a pillow, almost vertically, and its surface covered with ice; large doses of opium administered. By this means the bleeding was controlled, and soon the patient began to doze. I remained with the patient for several hours, until all danger of recurrence had passed away; ordered full opiates every third hour. Nov. 21st, 7 a.m.—A very good report; no return of bleeding; pulse good, and had taken freely of nutriment and wine, as directed, and several draughts of opium. At 12 again visited.— Doing well; sleeping quietly. At 1 o'clock I was sent for, as there was some slight bleeding. On my arrival found the patient excited, tossing about, and, in fact, very restless, with the haemorrhagic tendency strongly marked, and some arterial weeping from the wound, though additional pressure had been put on at the groin. I endeavoured by more suitably applied pressure to control the vessel at the groin, and did so as long as it was kept up, but this could not be relied on except temporarily, so that at 5 o'clock p.m. removed everything from the surface of the wound, elevated the stump at right angles with the trunk, applied the arterial (aneurism) compressor at the groin steadily upon the vessel, and then supported the stump with pads and wide straps of adhesive plaster, thus making gentle pressure all over its surface; and then sustained the entire in this elevated position by several small pads, and a pillow beneath it; a bladder containing ice was then allowed to rest upon the face of the stump, its chief weight being borne by the pillow, above and beyond its surface, and a full opiate and forty drops of Battley to be continued every fourth hour.

April 22nd.—Had a quiet night, and slept a good deal; took a pint and a-half of strong chicken jelly and beef-tea, five glasses of wine, and brandy at intervals.

On the 23rd.—No throbbing or haemorrhagic tendency; has taken nearly two quarts of beef-tea and chicken jelly, four glasses of sherry and four of claret, besides brandy; stump cool; pressure of aneurismal clamp most effectual, never moved; no distress or complaint about its pressure, therefore no meddling with it; to continue the Battley, fifty drops every fourth hour, which repeated doses are all essential towards controlling the spasms, which seem ever vigilant to come on.

This morning visited the patient at half-past 7, being restless during the early part of the night, and having had altogether only two hours' sleep, owing, as she says, to the pressure of the compressor. Re-adjusted the compressor higher up, and dressed the wound, which looks very healthy; cut out all the stitches, and though the stump has been sustained in the erect position for such a length of time, the flaps are well united in front, with plenty of material, not the slightest drooping backwards, owing to the manner in which the bandage acted, steadyng the parts forward, and assisted by the pillows supporting them from behind and below up to the front of the stump; then, when all the dressings were complete, placed the pad of the compressor on the artery, over the pubis, with moderate force sufficient to control its current, the ball and pad being directed slightly upwards; the skin over the vessel which had been first pressed upon was quite red and blistered; the use of the ice was now stopped; to continue nutriment, stimulants, and opiates as freely and as frequently as before; no less under the many distressing influences would sustain life.

On the 28th the condition of the parts was most satisfactory. All dressings being removed, several ligatures came away; the one on the main artery and some others remained unmoved. There was very little discharge, and the deep parts of the wound well consolidated. The parts being well sustained from behind forwards, both by pads and plaster, a bandage was applied from above downwards, so as to prevent retraction or dragging on the recently healed edges. The stump was then fixed on pillows at the same high angle, and steadied by a few turns of a bandage pinned to the bed on either side. I then made an assistant make pressure on the artery above the aneurism compressor at the pubis, and, after resting a few moments, I took all pressure off the artery. The

artery seemed to be occluded at the site of the pressure, for no pulsation could be felt. The assistant kept digital compression over the trunk at the pubis for fully ten minutes; on its being removed the patient felt no heave or impulse at the part, indeed, she distinctly stated that "the throbbing at the instrument ceased two days before." From the condition of the parts and the patient's feelings, Dr. Bennett and myself considered that the femoral artery was occluded; there was not the slightest tinge of blood during the dressing. From this period up to the healing of the wound and the patient's perfect recovery, there was no return of bleeding.

In the case just related the patient was so shockingly reduced from long continued illness before this operation, and the loss of blood which she sustained by the secondary gush, that the least additional flow, produced by any effort to secure the vessel in the stump, or by cutting operation higher up, would, I am perfectly convinced, have caused her death. The patient's life was saved by the conservative measure—*the immediate application of pressure on the main trunk*, so that not a drop of blood was lost after—jointly with the enormous amount of stimulants, nutriment, and sedatives so abundantly supplied throughout the after progress of the case.

The second important problem established in Bell's case is the propriety of immediately opening all formations of matter occurring after primary injury, whether located within or without the joints. The following case is interesting, as corroborative of the practice. A tradesman, aged forty-six, applied to me in October last, having received a deep punctured wound in the palm of the hand from a bradawl. He paid but little attention to it for a time. However, at the end of ten days the palm became exceedingly painful, hard and tense, while the dorsum of the hand was enormously swollen, and of a livid red colour; fever of the inflammatory character of the very highest type ushered in these symptoms. Together with this most serious condition of the hand, the lower end of the forearm was swollen and very tense, evidently showing that the mischief had extended so far also. I carefully incised the palmar fascia in two positions, having made a small wound over the metacarpo-phalangeal articulation of the index finger through the integuments and superficial bands of fascia. I passed up a director, slightly bent its concavity forwards, and divided fully the fascia so high as the muscles of the thumb; and, in a like manner, introduced

the director through a wound similarly situated over the base of the ring finger, carrying the incision nearly up to the annular ligament. A large quantity of matter escaped by both wounds, and very little blood from the manner in which the director lifted forwards the fascia to the security of the palmar arches behind; so tense were the parts that the wound gaped considerably. In spite of these free incisions, the perfect relief of tension, the unloading of vessels, and the discharge of pus, still, from the broken down constitution and habits of the man, the inflammation progressed up the limb, assuming the "diffuse" character. Two incisions were made parallel to and very near the brachial artery, one above the elbow-joint, and the second near the axilla, from both of which imperfect pus escaped. During all this time the patient was most liberally supplied with stimulants, nutritious broths, and eggs, &c., repeated large doses of opium, somewhat after the same manner as followed out in Bell's case. After the inflammation seemed checked in its upward course at the axilla, the elbow-joint of the affected limb was attacked, occasioning the most excruciating pain, over which was applied a thick paste of watery extract of opium and belladonna; this covered over with warm stupe cloths, alleviated to a certain extent the intense suffering. In four-and-twenty hours after the inflammation and pain set in, it was quite clear that matter was poured out into the joint; there was considerable prominence, tension, and deep fluctuation over the front and inside of the joint; rigors were incessant, and the patient was bathed in sweat. I laid open the joint freely on its inner side, taking the internal border of the olecranon process as a direct guide to the part; pus was let out to at least a wine-glassful; there was very little weeping of blood after the first discharge, and the edges of the wound flew wide apart, so completely was the tension relieved; a full stimulant and opiate were administered, and, after an hour's time, the patient fell into a quiet sleep, from which he awoke free from pain. It is not necessary to pursue the case further, as, after this period, there was a total arrest of the inflammation of the soft parts by the free incisions which had been made, as well as a healing process set up in the joint after the matter was evacuated. Though the motions of the fingers and hand, as well as the elbow-joint, were stiffened and crippled for some time, yet the man eventually and at the present time enjoys excellent motion and power over each. Such a fortunate result must be ascribed to the mode in which the incisions

were conducted, free and extensive as they were, and to the full administration of stimulants and nutriment, with the repeated doses of opium.

CASE IV.—*Laceration of the Axillary Artery, with rapid formation of an Enormous Bloody Tumour filling up the arm-pit, and extending over the greater part of the right wall of the chest, while the corresponding part of the bony case was depressed considerably, owing to its fourth and fifth ribs being broken; together with Fracture through the body of the Scapula; Recovery.*

James Kidney, aged twenty-eight, a powerful athletic young man, was admitted to Sir P. Dun's Hospital on the 21st July, 1873. He was brought into hospital in a state of the most extreme collapse. I was at once summoned to see him. He was then apparently in a dying state. He lay prostrate on the bed, cold, pallid, almost pulseless, and covered with cold sweat. The accident occurred close to the hospital, and fortunately for him, for quickly his sufferings were attended to, and his death struggle overcome. The account of the accident was as follows:—He was driving along on one of the Corporation watering carts; it was full of water at the time. While driving along the street, seated upon the top of the cart, with his right foot in the loop of the rope that regulates the out-pour of the water, the horse stumbled and threw him forward on the street, and the wheel of the cart passed over his right shoulder. It must be remembered that the water-float was full of water at the time of the accident, and its weight enormous. On examination of the apparently dying man, I discovered that there was severe haemorrhage from the left ear, and also a large bloody tumour over the left temporo-maxillary articulation, which rendered the motions of the jaw almost paralysed. On examination of the right side of the body, that most grievously injured, it was clear, on superficial inspection, that the left shoulder and arm were perfectly immovable. On closer observation and examination, it was readily discovered that the scapula was fractured from behind the notch of its superior spinous fossa right through the body of the bone to its axillary edge. By gripping each fragment the solution of continuity was quite evident, irrespective of the muscular attachments on the superior and inferior surfaces of the bone, the supra and infra-spinatus on the one side and the sub-scapularis on the other, the respective actions of these opposed

muscles were quite at variance, the superficial ones being more powerful, and rendering the entire scapula slightly convex backwards. On prosecuting the examination further, it was discovered that the third and fourth ribs were broken corresponding to the axillary region, while the whole right side of the chest seemed depressed and driven in; more external to this depressed side stood prominently, and rapidly created, a large fluid bloody tumour, as large as half of the largest melon; while on careful examination of the vessels in the axilla, it was found that the axillary artery from below the clavicle had no pulsation, neither below this point, nor in the brachial, nor in the radial or ulnar vessels. The violence applied to the part tore the axillary artery across. The sudden formation of an enormous bloody tumour must be ascribed either to venous effusion, or blood from the lower end of the vessel. It was quite apparent that the main artery was torn across, retracted, contracted, and, in fact, was torsioned, while the bloody effusion oozed from veins and smaller vessels damaged in a minor degree, and probably, as I have alluded to, by an accession from the lower end of the vessel when the injury was primarily inflicted; but it, too, soon contracted and retracted, and ceased to throw out blood under the depressed circulation, and also through the influence of the contractile power induced upon the vessels by the freezing applications to the side. The temperature of the limb had fallen three degrees as compared with the sound one, and the patient had no power of motion over it whatever; even the sensibility of it was as greatly impaired.

In a short time after admission the bloody tumour filled not only the right axilla, and extended over the right wall of the chest, but likewise over the supra-clavicular region. To save the man from the collapse which threatened his life, warm stimulant draughts were forced down his throat. Stimulating turpentine and foetid enemata were given. Warm beef-tea and whiskey were administered in the same direction, and warm punch injected by a tube into his stomach. Hot jars were applied to his almost frozen feet, and along his limbs; while a large ice-bag was laid over the crushed and injured side. The man all this time was placed upon his back on a hair mattress, head on a level with the trunk. Warm clothing and friction, with ammonia over his heart and stomach, were steadily applied. A discutient solution with opium, the watery extract, was constantly kept applied over the injured temporo-maxillary region.

From the very first—consciousness and recovery from collapse being established—he was ordered small doses of calomel, James' powder, and opium every third hour, this in conjunction with a lotion of muriate of ammonia, spirit; vinegar and water being substituted for the ice-bag. On the third day the most violent and rapid inflammation of the air-tubes and structure of the lung on the right side was established. The pills were pressed every second hour, and a large blister applied over the front of the chest, and the mercury gradually and steadily taken as a preventive from the first. Now that mischief threatened seriously, a few additional doses more rapidly administered produced tenderness of the gums, and constitutional affection by the mercurial.

July 26th.—Now that ptyalism is established, the acute terrible pain in the chest has subsided, and the man breathes more freely; the pulse has come down to 86 from 110; the skin is moist; there is but little change in the bloody tumour; it has not increased, but is now solid almost throughout its great extent; perfect immobility of the arm; temperature depressed, and sensibility greatly lessened; no pulsation in axillary, brachial, radial, or ulnar vessels; limb lies dead by the side supported on pillows. The whole condition of the man is very depressed, and, though to a certain extent rescued from the immediate danger that threatened his life, lies still in the most precarious state. He suffers the most intense pain in the arm-pit. Ordered a grain of opium every third hour to allay his suffering, and limb soaked in a saturated solution of opium and belladonna along the axillary plexus, and brachial artery. These means subdued or rather lulled the acute agonising pain. Beef-tea, brandy.

July 27th.—Slept quietly; still constant, dreadful pain in arm-pit and side, if the lotion be discontinued for even a short time; a troublesome cough. On examination of chest by stethoscope his bronchial affection and congested lung were not so severe or embarrassing, neither were the feelings of the patient so urgent for relief. A mixture of liquor morph., laurel water, camphorated tinct. of opium in water, soothed the troublesome cough.

July 30th.—Gradual improvement since last report; the tumour has been gradually and steadily diminishing, the stimulating cold application being kept assiduously to it. The scapula has been steadied from the first by pads adjusted over it—two, one over the supra-spinous fossa, the other over the infra-spinous, and four to six wide straps of adhesive plaster, which steadied the movements of

the broken bones, without the inconvenience of a bandage, which would, if applied, have constricted the chest, and embarrassed still more the laboured respiration.

August 3rd.—The tumour gradually disappearing; all chest symptoms greatly alleviated; no pain on inspiration or expiratory effort; but little cough, and healthy expectoration; the scapula from day to day steadied by pads and adhesive straps as before; the recumbent position still enforced; limb two degrees still below normal temperature, its sensibility greatly diminished, and the pulsation in all its leading branches absent; to continue the opium, a grain every fourth hour, to relieve the pain that surely returns on leaving off the medicine; and to continue also the stimulating application to the side, which shortly and steadily is reducing its bulk. Stimulants, beef-tea, and nutriment most liberally allowed.

August 15th.—Improvement in every way very remarkable; the prostration and evidences of sinking never recurred, yet at times it is astonishing how the heart's action hesitates, and requires abundant supplies of stimulants to restore and steady its action. The fearful chest symptoms which suddenly threatened his life have been now altogether averted by the salutary influence of the mercury, as before stated, yet there is an irritability of the bronchial membrane, with sluggishness of expectoration, which yields to the exhibition of prussic acid with chloric ether. The condition of the thoracic tumour is remarkably diminished, though the darting pains and *agony*, as described by the patient, are sometimes almost unbearable. The want of pulsation throughout the entire arterial chain of large vessels, from beneath the clavicle (an inch) to the end of the radial and ulnar arteries is still the same, and the temperature remains as before, two degrees lower than the sound limb. The scapula has been steadily retained by the pads and bandage being re-adjusted. The patient has never been turned to either side, being rigidly lifted, for the arrangement of sheets, &c., by assistants; and, indeed, no lateral motion could be allowed, as the slightest turn to either side provoked from the sufferer the greatest agony; neither could his head be raised in the least degree from above the horizontal position of his body without the most excruciating pain.

August 20th.—The applications continued over the extensive bloody tumour, which is gradually contracting and diminishing in volume; the large doses of opium still required and administered to control the agonising and unaccountable darts of pain which

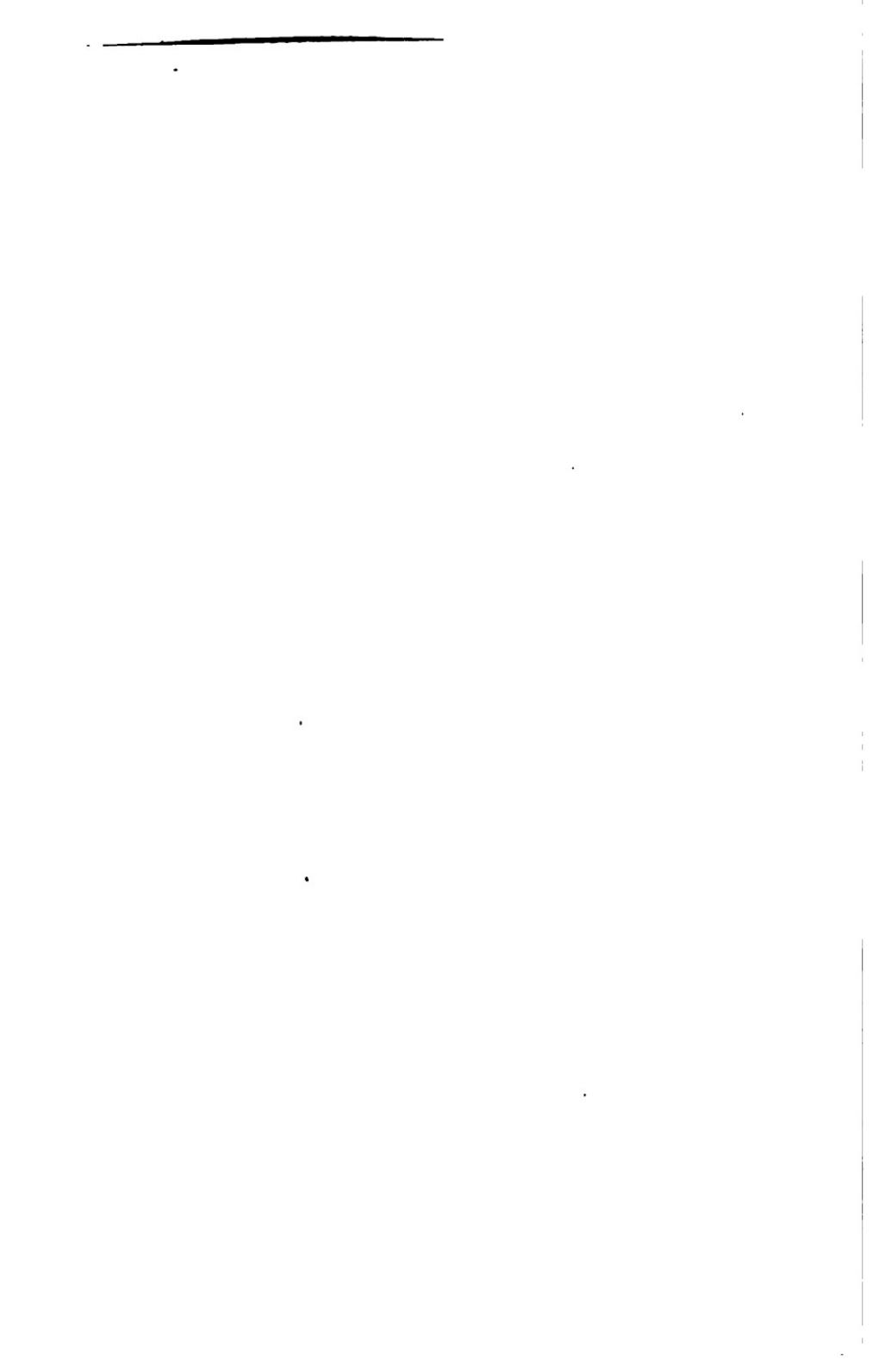
now and then shoot through the tumour; the respiration, though feeble, is not abnormal in its sound, and there is no bronchitic râle or profuse expectoration to evidence implication of the parts within the chest; to continue support, sedatives, and stimulants freely. With gradually and steadily improved state, the patient continued to the end of the eighth week, when he was allowed to get up, the arm being supported in a sling. Now I shall here state that, up to this time, the pulse has never come back to the brachial, radial, or ulnar arteries, and that still the temperature of the limb is below its fellow fully two degrees or a little more; its power is not restored, and its motions are crippled and restricted. These latter conditions are not to be wondered at; yet I believe the excess of inability is mainly due to the want of arterial supply, which, though sufficient to preserve the life of the limb and support it up to the mark for motion to a certain point, yet is not able to supply sufficiently the minute arterial nervous supply of the limb, presiding and guarding over the functions of perfect sensibility and motion. This condition, of course, must be taken conjointly with the injury sustained by the great nerves about the artery at the place of its laceration.

It is now the eleventh week since the accident, and a considerable time has elapsed since my last report, and I am happy to say the man is able to go about without any support to the arm. The tumour has now almost entirely dispersed, yet there is a considerable hardness all along the axillary vessel, including the entire of the upper third of the brachial artery; there is slight numbness, and still a diminution of temperature to two degrees or more; a deep inspiration or any sudden motion of either the arm or head gives intense pain in the shoulder and right side of chest; mere auscultation gives but little evidence of lesion within the chest; no doubt the respiration in the right lung is very feeble; and by careful manipulation it is readily discovered that the broken scapula is united and solidified; a strong solution of belladonna and watery extract of opium to be applied on lint deep into the arm-pit and along the course of the brachial artery; opium still every sixth hour. It is also remarkable that, in addition to the loss of temperature and sensibility, there is also a considerable diminution in the bulk of the limb, as contrasted with the sound one, the upper arm measuring an inch and a quarter less, and the forearm nearly an inch. The falling away here must, however, be estimated as even greater than the actual measurement affords, inasmuch as the

right arm is always larger than the left, and particularly so in men who labour severely for their maintenance.

Early in November the patient was dismissed from the hospital. All hardness in the track of the axillary and brachial artery was dispersed, except for about an inch at the upper part of the axillary vessel, where an indurated piece remained about the size of an almond, and in the very line of the artery. I may here add there was no glandular enlargement at any time in the axillary region; all the large vessels remained silent as to pulsation. At this time, too, the flattening and depressed condition of the right side of the chest was most remarkable, and likewise the entire shoulder and limb drooped many inches. On examining the spine it had undergone a great change, being curved considerably to the left side. In January the patient returned to the hospital, complaining still of acute pain occasionally occurring in the right side of the chest, corresponding to where the ribs had been broken. The same want of power in the arm remained, and its sensibility was not even so great as when he left the hospital in November. The wasted condition of the limb was also more manifest, and the flattened state of the chest more conspicuous. The Plate No. VI., taken from a fine photograph by Robinson, delineates his condition at this time most accurately; the drooping and emaciation of the right shoulder and arm, and the depressed state of the right side of the chest. About this period a new train of nervous symptoms were superadded. The man complained of occasional faintness coming over him, amounting sometimes even to unconsciousness for a few moments; he also felt a weakness in the lower limbs, particularly in the left thigh and leg, and constantly tripped, and on three occasions came to the ground on his left knee, and with such force as to tear the trousers and remove the skin from the part. I have seen the patient a few days since, writing now (October, 1874), and examined him very carefully. His condition seems gradually getting worse; he complains of pain occasionally shooting through the arm-pit, scapular region, and down the arm. The vessels remain as from the first, without pulsation, and the current in the subclavian and carotid, in the affected side, is very feeble, as contrasted with the left. The diminished temperature and impaired sensibility of the limb are, if anything, worse, and his memory is more defective, as also his bodily strength more weakened—in fact the man appears a complete wreck, as contrasted with his appearance before he met with the accident. The







steady course with which those brain symptoms and nervous derangements have manifested themselves and gradually progressed, I fear, must be referred to some severe injury to the cerebral structure at the time of the accident; for it must not be forgotten, in the history of the case, that blood flowed freely from the right ear after the accident, and that special applications were used and treatment enforced to ward off any unpleasant results from so serious a complication. The very treatment adopted to control other mischief and dangers threatening life at the time, was here most suitable in checking active inflammation of the brain, and ensuring repose, at least for a time. But every practical surgeon is aware of the fact, how insidious are the symptoms, gradual, slow, and steady in their progress, that ultimately lead to softening, *ramollissement*, of the brain structure. The slow and steady progress of the case, though marvellously restrained by the treatment considered most suitable, harbingers badly, as I conceive, for the permanent recovery of the patient.

Having on several occasions met in consultation upon this most interesting case, my able colleague, Dr. Moore, the distinguished Professor of the Practice of Medicine in the University of Dublin, he has kindly drawn up his views upon it, and which I have great pleasure in appending:—

“ **MY DEAR BUTCHER,**—I have just seen your patient _____. I can find no pulse in the right wrist, whilst the temperature of the arm generally is lower than the left; but I can detect very feeble pulsation in the right subclavian and in the right carotid. On stripping the patient I was struck with the drooping of the right clavicle, and the flattening and falling in of the right side generally, whilst the right nipple is fully an inch lower than the left, and there is great spinal deformity, the convexity pointing to the left side. Percussion over the right side in front is relatively dull, and attended with pain, whilst about the junction of the third rib with the sternum a pulsation can be heard, quite as loud, if not louder than that of the heart. The patient has a short, dry cough, occasionally severe pain down the right arm to the tips of his fingers, interscapular pain, and pain under the right breast. The respiration over the right side generally is more feeble than that of the left.

“ My reading of this case is, that, as a result of the accident, the distal end of the subclavian artery has become impervious, and

that the right carotid and innominate has suffered to a considerable extent, and to accommodate such an arrest of the circulation that the aortic arch has undergone dilatation, more especially about the ascending and transverse angle, which secondary aneurismal dilatation, so to speak, is pressing on the right bronchus and nutrient vessels, and has given rise to an atrophic condition of the right lung, with symmetrical flattening and falling in of the right side, and consequent spinal deformity.

" And further, when we take into account the giddiness, loss of consciousness and speech, with the transient attack of paralysis so clearly described by the patient, we must look upon them as symptomatic of a still further extension of the atrophy, in a diminished capacity of the right cerebral hemisphere, the result of obstruction of the right carotid artery and its tributaries. Judging from the symptoms and physical signs in this case, it appears to me to bear a close analogy, in its results, to a case of thoracic aneurism which was under my care some time ago in the hospital, in which there was loss of speech, memory, and disorders of the intellect, with paralysis of motion and sensation, depending (as verified by pathology) on an atrophic condition of the left half of the brain, the result of *an impervious left carotid artery*, from an aneurism of the transverse portion of the arch of the aorta. Lastly, this case is full of interest, in a psychological point of view, as showing how a surgical injury, in a comparatively remote region, can secondarily effect the sensorium.

" Believe me to be, yours very truly,

" WILLIAM MOORE.

" R. G. BUTCHER, Esq., M.D., &c."

ART. XI.—*Cases in Practice of Ileus and Strangulated Hernia, treated by Opium—the Case of Ileus also treated by Puncture.*
By J. W. MARTIN, F.R.C.S.I., Portlaw.

IN the year 1863 I wrote a short article on ileus, which appeared at the time in the *Medical Press*. I then said:—" In many cases it is difficult, in most impossible, to form an accurate diagnosis of the cause of obstruction; our treatment must therefore be, in a great measure, empirical. This being the case, we should adopt that course of treatment most likely to prove serviceable in the greatest

number of cases. This appears to me to be the early and steady administration of opium." I then had twenty years' experience of the advantages to be gained by this plan of treatment, at that time not generally adopted. Twelve years since have confirmed me in my good opinion of its value; indeed, at one time, I had the outlines of a *brochure* on the subject drawn up, intending to publish it; but, walking into Messrs. Fannin & Co.'s shop in Grafton-street one day, with my mind hot on the subject, I found myself fore stalled by Brinton's very valuable little posthumous treatise on the subject, which contained all I had to say about it. Since then I had two or three cases, in which, having given opium freely for some days, the action of the bowels was induced by the use of enemata, containing several ounces of recent oxgall diluted with warm water.

The following case will be of interest, showing, as it does, that there are other measures which may be adopted with advantage, in addition to the foregoing.

I was sent for to a neighbouring village to see a man, aged seventy-five years; he had been attacked with colicky pains four days before, for which he had been treated with active aperients and enemata without producing any action of the bowels; the pain had increased; the abdomen had become much swollen and tympanitic; his countenance anxious; some vomiting; pulse 120, small, irregular; and he insisted that he was dying.

I introduced the O'Beirne's tube for twenty-eight inches, not only without difficulty, but also satisfying myself that, in this case at all events, it passed the sigmoid flexure; some flatus escaped; I threw in an enema of turpentine and oil mixed in emulsion. On withdrawing the tube an effort was made at expulsion, but without success. I introduced the tube again, and pumped out part of what I had injected, mixed with faecal matter, but no relief was obtained. I then determined to puncture the distended bowels, and did so with a fine trocar and canula, about two inches below the ribs, on a line with the left nipple; much flatus escaped, but the tube at last became stopped with feculent matter. I then repeated the puncture about two inches more towards the linea alba with similar results. There was almost immediate relief from the extreme suffering, and one-third of a grain of morphia given subcutaneously procured some hours sleep; the dose was repeated by the mouth at night, and next morning there was free action of the bowels.

Visiting him six days afterwards I found him comparatively well, but suffering from diarrhoea, for which I prescribed an astringent chalk mixture, with laudanum. Yesterday, twelve days after, a neighbour of his told me he was quite well. There was not the slightest suffering or mischief from the puncture. I should say that I took care, by compression, to keep the peritoneal surfaces in contact while the instrument was penetrating the bowels. This case leads me to make some remarks on the value of opium in cases of incarcerated hernia.

In a paper I wrote on the subject some years ago—I cannot recall to mind in what periodical or at what date—I drew attention to the practical distinction to be made between strangulated and incarcerated hernia. I would now again address myself to the point.

A sharp line of distinction cannot be drawn, but tact, attention, and practice, will enable us soon to settle approximately the symptoms which should decide us on either proceeding promptly to operation, or adopting other courses with a view to promoting the return of the hernia. I would say that, if the patient be young and healthy, the hernia recent, small, tense, and painful to the touch, with the abdomen hard, and either retracted or distended and tympanitic, prompt operation is the safest remedy. But in the aged—when the hernia is large and of long standing—when, if a truss has not been worn, the parts have had time to accommodate themselves to the abnormal state, or, when a truss being worn, a large mass suddenly protrudes; when handling gives but little pain or suffering—in such, I think, other remedial measures may have fair trial. The warm bath, if convenient, or, what I prefer, large hot fomentations, and a moderate trial of the taxis, preceded by a large dose of opium—I prefer this to either chloroform or tobacco.

In the *Medical Press*, 1863, I published a case in which I was successful in reducing a badly incarcerated hernia, under the influence of opium, being the third case in which I had used it successfully. The following cases have also occurred in the course of my practice.

J. A., aged fifty-eight, a stone-mason, has had a right inguinal hernia for several years, for which he wears a truss, but, from the nature of his employment, lifting heavy weights, it sometimes protrudes. A year ago it became incarcerated, but, after a moderate dose of laudanum, was easily reduced. On this occasion, when

lifting a heavy stone, the hernia came down, and he could not reduce it. Having been away from home most of the day, I found, on my return in the evening, that my assistant had been sent for three hours before, had tried the taxis, and, finding he could not reduce it, gave 25 drops of Battley's sedative. On visiting him I found the hernia about the size of a goose egg, and the patient suffering great pain. I tried the taxis again, patiently, for nearly an hour, when I made up my mind that the case would require operation. Not having had dinner, I gave him forty drops more of Battley, and went to have some refreshment, and prepare the requisites for operating. On returning, after an hour, I again tried pressure, and had not the hernia five minutes in my hand when it returned easily, and all went well.

I was called about 3 a.m. to see J. F., aged twenty-five, delicate of frame and constitution. He had a left inguinal hernia, for which he habitually wore a truss by day, but left it off at night. On this occasion, during a fit of coughing, the hernia protruded, and, becoming painful, he sent for me. I found him in great agony; his pulse sharp and rapid; countenance anxious; the hernia had been down four hours, and felt tense; he had vomited once. I tried the taxis, got him into a hot bath, and there repeated the attempt to reduce it, but without making the slightest impression upon the swelling. I then determined to have recourse to the operation, and wrote to a friend to come and assist me; but as he could not reach me for four hours, I gave two grains of opium, and directed one to be taken every hour, keeping up a hot fomentation with flannels and impervious cloth. When my friend arrived, four grains of opium had been taken. He suggested chloroform; and I was about to leave the house to procure it, when the hernia receded under the slightest pressure of his hand. We applied his truss; his bowels responded to a dose of black draught, and he recovered rapidly.

Two years ago I was called at midnight to visit a small farmer, about four miles from my residence. He was aged seventy-five; wore a truss for an old inguinal hernia, which had come down on the previous evening, and not being able to reduce it, as he was used to do, it became painful; colicky pains set in, and he felt very ill. Having been apprised of the nature of the case, I brought my son, Dr. John Martin, with me, and the necessary articles for an operation. I found the man suffering greatly; the hernia of very

large size; solid, as if containing omentum, and tender to the touch. I first threw in one-third of a grain of muriate of morphia under the skin, and tried the taxis, but without success. I then applied the ether spray, which produced great contraction of the skin and loose structures; but two hours passed without making any impression on the hernia. I then threw in half a grain of the morphia subcutaneously, and, waiting for half an hour, again tried the taxis, which was very speedily successful, and the patient made an excellent recovery.

A few years ago I was requested by a *confrère* to visit a patient in the Poorhouse Hospital under his care, on whom he meditated operating for the relief of an incarcerated hernia, but for which he was strongly advised by a mutual medical friend to try the opium treatment. I found the patient to be a wretched object, vomiting constantly; abdomen tumid, but not tense, and the hernia bore handling well, not being at all tender; still the taxis made no impression on it. Feeling satisfied that it was not strangulated, I, too, voted for the opium treatment, and he was ordered a grain every four hours, frequent enemata of warm milk and broth, and hot fomentations to abdomen and hernia. This line of treatment was continued for eleven or twelve days, when the hernia receded spontaneously; the bowels acted after having had no motion for fourteen days; and the patient recovered so rapidly that he left the house four or five days afterwards quite well.

What became of the eighty or ninety grains of opium he took? for he showed no sign of narcotism all through his illness.

ART. XII.—*Surgical Reports and Observations.* By ANTHONY H. CORLEY, M.D., F.R.C.S.I.; Surgeon to Jervis-street Hospital; Lecturer on Surgery, Carmichael School of Medicine.

[Continued from p. 309.]

IV.—RARE DISLOCATION OF HIP.

V.—ICHTHYOSIS AND EPITHELIOMA OF TONGUE; EPITHELIOMA OF LIP; OPERATIONS.

VI.—IMPERFORATE RECTUM; OPERATION; RECOVERY.

IV.—*Rare Dislocation of Hip.*

MR. O'N., a strong, healthy man, who told me that "he knew his age was seventy-four, but that it might be more," was standing beside a field-gate on 2nd June, 1874. The gate was overturned by a young

horse, and in falling struck Mr. O'N. on the left side. The shock was considerable, knocking him down and causing much pain. On attempting to arise, he was unable to do so, and found most of his unpleasant sensations located in the region of the left hip. He was immediately conveyed to his bed; and his nephew, a highly intelligent medical student, who lived near, was soon with him. It was plain, from the mere appearance of the limb—shortened, inverted, and the thigh sloping across the opposite one, that the accident was not that usually met with at the patient's advanced age, and this negative diagnosis was confirmed by the rigidity of the limb at the ilio-femoral joint. Dr. Lloyd, of Malahide, the patient's usual medical adviser, was then sent for, and he at once perceived the nature of the accident—viz., dislocation on the dorsum ilii. I saw the case the same day, and perfectly agreed with his opinion. Knowing the danger attending an attempt to reduce a hip luxation at such an age, I postponed interference till the next morning, in order to have assistance and all the necessary apparatus. The next day, assisted by my friend and former colleague, Mr. E. S. O'Grady, I proceeded to the operation. As the patient was, for so old a man, extremely muscular, and, moreover, very much averse to endure any pain, we considered it necessary to place him under the influence of chloroform. At the same time we did not so resolve without hesitation, as he had rather a weak heart and an intermitting pulse. When he was pretty well under the anæsthetic, reduction by manipulation was attempted, and with a little trouble the head of the bone was restored to its socket. His legs were then fastened together, and he was placed in bed, with directions to be very careful in his movements for some weeks. Just one fortnight afterwards I was again summoned to him, and I found that the accident had a second time occurred. He felt so well after the reduction, that it was with difficulty he could persuade himself that anything serious had happened to him, and on the day before I saw him he had himself assisted to the table, and sat down. In being replaced in his bed, he gave himself a sudden twist, and the dislocation recurred. With the same able assistance, and in the same manner, I again reduced it, and, for the purpose of preventing a repetition of the accident, I devised an apparatus of Sparks' leather, which was manufactured with great care by Messrs. O'Neill and Thompson, and which has been worn up to a very recent period by the patient, with the result intended.

Remarks.—Dislocation of the hip at this advanced age is a very rare accident. Hamilton, of Philadelphia, in his exhaustive work on "Fractures and Dislocations," states that the oldest patient he met the accident in was sixty-two, but he quotes Gautier, who records one at eighty-six. Bryant had a patient of seventy-three. The accident is then so rare, and the intra-capsular fracture so common, that extra care and observation are necessary before the surgeon arrives at a conclusion. The results of a mistake, too, would be very deplorable, as the fracture most likely to be mistaken for dislocation is the impacted one, traction or manipulation of which would destroy the patient's best chance of recovering with a useful limb. The recurrence at the end of a fortnight was probably due to the head of the bone being, by a sudden twist of the limb, brought violently against that portion of the capsular ligament and superimposed muscles which had been lacerated by the original accident, and which had not had time to recover their normal conditions. It suggests, too, the necessity for perfect quietude for a considerable period, and the wearing of some appliance to prevent a sudden rotatory movement in the limb.

V.—*Ichthyosis of the Tongue.*

J. E., domestic servant, aged about fifty, was admitted into Jervis-street Hospital, October, 1872, suffering from an epithelioma of the corner of the mouth. Two years previously she had been operated on in a neighbouring hospital for a similar disease of the lower lip, about its centre, and the cicatrix was visible, healthy, and quite unconnected with the second diseased surface. She had been for some years an inveterate smoker, and although of late she had moderated her daily allowance, still she continued the habit. The ulcerated part was of considerable extent, involving the thickness of the cheek, and spreading outwards about half way to the edge of the masseter muscle. It *seemed* more extensive on the inside of the cheek, in consequence of being continuous with a rough whitish margin, three-quarters of an inch wide. Her tongue presented that appearance known as "ichthyosis" of the organ, being almost milk-white in colour, the papillæ in the centre, mapped out in polygonal, flattened "clumps," separated by superficial grooves. On the margins the clumps were more elevated and rough, and the grooves deeper. The patient suffered much pain from the epithelioma during the movements of her mouth, but as to the tongue, at that time she only complained of its being dry and hard. She was very

anxious to have the cancer removed ; and as she was in good health, with no glandular contamination, as the disease had a distinctly local origin, due to irritation, and was quite separate from the first cicatrix, I determined to operate, fully explaining to her the chances the removal gave her, and the probability of the disease returning. I, accordingly, some days after admission, removed freely the diseased surface, scooping a large piece out of the cheek, but not thinking it necessary to remove the before-mentioned white patch, which I looked on as similar to the condition of the tongue. She recovered perfectly, and though there is a pucker of hard cicatrix at the corner of the mouth, she has never since experienced any trouble from it. About a year afterwards her tongue began to trouble her. The elevated papillæ at the two margins had been very symmetrical, but one group, on the right side, began to grow slowly, while the groove round it deepened and widened, and at the same time she began to suffer acute pain, especially while eating. The ulcerated groove had that unhealthy granular look which we so often see when a scab falls off an epitheliomatous surface. The patient's sufferings now became so great that she grew clamorous for operative interference, and, accordingly, on the 10th May, 1874, I removed the diseased portion, by transfixing the tongue internal to the disease with a needle carrying a double ligature, and then tying the ends, so as to include a large V-shaped piece. As, notwithstanding the tightness with which I tied the ligature, there seemed a great tendency to haemorrhage, I did not like to *cut* out the diseased mass, and, therefore, lost the chance of making a microscopical examination. A slough separated in a few days, and after throwing out healthy granulations, the wound soon healed. From the time of the cicatrification until the beginning of last month (September) she enjoyed immunity from all suffering, but since then she has applied to me with exactly the same condition in a group of papillæ farther back on the same side; but as the process of growth is very slow, and she does not as yet suffer much pain, I have deferred the consideration of any operative interference.

Remarks.—Epithelioma of the lip is so common an affection that I should never have thought of presenting the foregoing case to the notice of the profession but for the connexion of the disease with a remarkable and rather rare condition of the tongue. Mr. Hulke, of the Middlesex Hospital, was the first, I believe, to describe the disease called ichthyosis of the tongue. It was

subsequently written on by Sir J. Paget, and last year Mr. Fairlie Clarke and Mr. Morris drew attention to the manner in which it develops into epithelioma. In my patient the disease of the tongue, or at least the white and hard condition of it, had been sometime antecedent to the occurrence of epithelioma of the lip; and her history, as far as I could make it out, confirms the opinion of the last-named authorities—that the disease has not necessarily a syphilitic element in it. The success of the palliative operations I have performed on her encourages me to think that the disease is for the present essentially local, and I may possibly again operate with relief to her, but as the condition extends quite to the base of the tongue, I doubt the possibility of performing with success any operation which would give a reasonable prospect of a radical cure. Her case is a very striking example of the force of habit. After the last operation I warned her of the necessity for giving up smoking, and as she did not seem to attach importance enough to what I said, I repeated my admonition, and drew as forcible a picture of aggravated lingual cancer, and the horrifying details of its history and termination, as I was able. To all this she listened with oriental stoicism and reliance on fate, and told me plainly that, as smoking was one of her few pleasures in life, the possibility of her realising my picture was not sufficient to make her give up the custom of years.

VI.—*Imperforate Rectum.*

On 20th January, 1874, a healthy woman, Mrs. S., aged about forty, was delivered by the forceps of a male child. The infant was full-sized and well formed, but on examination was found to possess no anal aperture. Thirty-three hours after birth the child was brought to Jervis-street Hospital, and I, as the surgeon on duty, was sent for. I found the child crying, forcing, and evidently in pain, and I diagnosed an imperforate rectum. I use the word rectum advisedly, as it was at once evident that there was a greater deficiency than of the anus merely, as even in straining or crying no bulging or other guide to the end of the gut could be perceived in the natural situation. On examining the penis, however, a very minute aperture could be seen on its lower aspect, about half way from the point of the prepuce to the root of the scrotum, and, on the child straining, a small drop of some material with the appearance and odour of meconium could be detected issuing from the abnormal

opening. On consultation with my colleagues, Drs. Stapleton and Kane, I determined to make an attempt to reach the gut, but first warned the child's people of the danger of the operation, and the small probability of success. My impression, which seems to have been correct, was that the rectum, as a gut, terminated some distance from the cutaneous surface, and that a narrow fistulous track ran from the end of the bowel along the base of the bladder, and, passing parallel to the urethra, opened at the external orifice before described. I also found by experiment that this canal communicated with the urinary tract, for on passing a bent probe along the urethra into the bladder the patient strained to pass water, and the stream emerged partly through the urethra along the probe, and partly through the lower opening. I may mention that I have since determined the commencement between the two canals to be a valvular one, as urine frequently passed by the lower one, but faecal matter never by the urethra.

Leaving the probe in the bladder as an index to the position of that viscus, I endeavoured to introduce another along the fistula. Here I was for some time foiled, as the passage was too constricted for the smallest ordinary probe to pass through. Fortunately Dr. Stapleton had his case of lachrymal probes with him, and with some trouble I was able to introduce the smallest of these along the fistula. I was not, however, able to feel its point in the perineum, and I was obliged, when I considered it had reached a point above where the natural anus should have been, to make an incision in its direction. Carrying this cautiously upwards, I was at length able to feel the point of the probe, and pushing that towards the surface, I laid it bare. Meconium now flowed freely, and I introduced a probe from the wound, and passed it for some distance up the rectum. The haemorrhage was very slight, and the infant seemed much relieved by the evacuation of his bowels. On the third day he was brought to me again. He had fed well, and looked well, but there was no faecal discharge from the bowel, and it was coming again by the abnormal channel. I then concluded that I had only succeeded in opening the fistula, and had not really reached the rectum. On passing the two probes in, as in the former operation, I was soon able to reach the lower one through the wound, and, bending its point, was able to slip it up into the rectum. Pushing my finger higher up, I could feel its outline through some thickened structures, but I could also feel, though not so plainly, the probe in the bladder. I was very

much afraid to use a knife as freely as necessary along the bent probe, lest I might accidentally lay open the bladder. I therefore dissected upwards behind the posterior probe, between it and the front of the coccyx, and when about three-quarters of an inch from the surface, I introduced my finger, and felt the probe separated from me by the posterior wall of the rectum. This I scratched through for some distance with my finger-nail, and, withdrawing the probe, was able to pass up a No. 10 catheter. The case has done well since, but the new opening required at one time another slight nick at the edge, and needs the constant passing of a large bougie.

Remarks.—It is so rarely that these cases of imperforate rectum do well, that I think the foregoing case worthy of publicity. That it was, as an operation, successful, is proved by the fact that the child is now (October) in good health. Within a month of his birth he suffered from pertussis, and he had scarcely recovered from that when measles was introduced into the house where his mother lived, and he contracted that disease, but passed through it favourably. In the beginning of August, to complete the history of his ailments, he got small-pox, but recovered perfectly. I have deemed it judicious not to attempt the closure of the fistula for some time, as I might possibly require it again as a guide. As bearing on the subject of teratology, I may mention that though the mother and father are both healthy individuals, they have another child, aged eleven, who has an aggravated cleft palate. The deformities in both these children are laid specifically by the mother on mental shocks she sustained at an early period of gestation.

ART. XIII.—*Mercurial Fumigation: Description of a New Apparatus.* By FRANCIS B. KANE, M.D., M.Ch.; Fellow of the Royal College of Surgeons; Surgeon to Jervis-street Hospital; Lecturer on Surgical and Descriptive Anatomy, Carmichael School of Medicine, Dublin.

THE advantages of the local application of mercury to syphilitic and other sores has been recognised for a long time by the practical surgeon, and the employment of mercury by vapour or in a state of sublimation seems of late years to have superseded its local use in any other form.

The great utility of mercurial fumigation is best proved by the length of time the treatment has lasted—Mr. Pearson having used it as early as the year 1786—and by the various means employed in its application, from the mercurial candle of Colles to the vapour baths of Parker and Lee. The use of the candle, the most applicable for limited surfaces, is precluded in all affections of the mouth, nose, &c., and mercurial vapour baths are more suitable for general cutaneous syphilitic eruptions, or for producing an effect on the system, than for securing the beneficial effects of the drug locally. Having often observed the advantages derived from this method of medication, and at the same time experienced the difficulties, inconveniences, and expense, attendant on the use of any apparatus at present obtainable, I was led to devise a fumigator having many advantages over those now in use. Its cheapness and facility of construction are unequalled. By it organs, such as the tongue, palate, tonsils, &c., can be fumigated, and in one minute the largest ulceration can be covered with a coating of freshly-sublimed calomel, which, on account of its *minute* division, has a particularly active effect on the sore.

Description of the Apparatus.—(aa') Soft glass tube about ten inches long drawn out to a fine nozzle at a', and cut off with a file at a; the edge being rounded off in the gas-flame, or spirit-lamp, so as not to cut the cork (b). (c) Slight bulb blown on the glass tube (aa'). (b) Cork made to fit a, and holding tightly the small glass tube (ee') which passes through it. (d) Small wire or metal cup hung by wires about two inches under c. (I first used the cap of a soda-water bottle, which does very well.)

Method of Use.—Five or ten grains of calomel, according to the size of the sore, are introduced into the glass tube (aa') through the end (a) on the point of a pen and placed in the bulb (c). The end (a) of the glass tube (aa') is then closed with the cork (b), and to the end of the small glass tube (ee') is attached the India-rubber part of Richardson's spray apparatus. A small bit of rolled-up lint wetted with alcohol is now placed in the cup (d), and lighted. Whilst the calomel in the bulb is being sublimed, a gentle current of air is forced through the tube, carrying the sublimed calomel with it, to be deposited on any moist surface the fumigator may be held before. The distance from the ulcer the nozzle should be held during the fumigation varies from one to three inches. A certain proportion of the calomel will be deposited in the drawn out half of the tube, but can be removed when necessary by a quill.

Subjoined are four cases selected for a trial by fumigation, in the observation of which I had the valuable assistance of my colleagues, Drs. Martin, Corley, and Meldon, who have since used my calomel fumigator, both in hospital and private practice, and whose reports of its results in their hands, with my own experiences of its effects, satisfy me that a more extensive use of this simple plan of treatment will lead to most successful results.

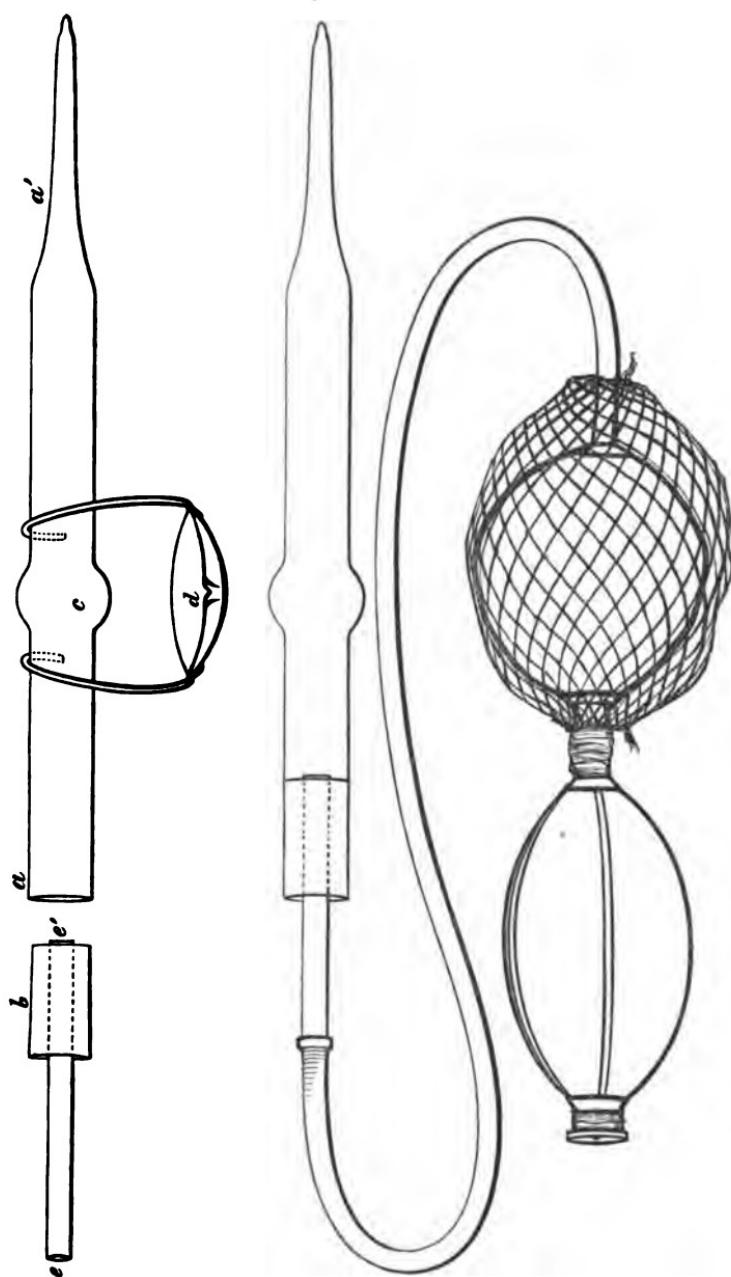
CASE I.—P. B., aged twenty-two, was admitted into Jervis-street Hospital, March 13th, suffering from syphilitic ulcers with phimosis. Large syphilitic tubercles covered both sides of the scrotum, and the opposing inner surface of the thighs. The tubercles were secreting a thin acrid fluid, which produced irritation sufficient to render his life miserable. He had also a large open bubo in the left groin. *Lotio nigra* was ordered to be injected under the prepuce twice a day. The tubercular patches and the bubo to be fumigated with calomel once a day.

On March 20th, eight days after he was admitted, the tubercles had entirely disappeared, and the bubo was nearly healed. The improvement after each fumigation was well marked. By this time the prepuce could be partially drawn back, presenting to view an irritated hard chancre beside the frænum.

I determined to try local fumigation with it also, and, to study its effects the more accurately, I ordered the *lotio nigra* to be discontinued, and *lotio plumbi* to be used in its place. The healing process which, under the application of the former, was not apparent, now commenced and progressed rapidly. On the 30th of March he was discharged from hospital cured.

CASE II.—F. B., aged eighteen, was admitted into Jervis-street Hospital, March 20th, suffering from phimosis, and through the thickened prepuce an indurated chancre could be felt in the situation of the frænum. His state of health was very bad, and he complained of most intense pain at the seat of the disease. Ordered bark, ammonia, and opium. *Lotio nigra* was ordered to be injected under the prepuce twice or three times a day.

On the 26th, as phagedena had set in with all its usual train of constitutional disturbances, I recommended the operation of circumcision, the phimosis being still irreducible. He would not consent, so there was nothing to be done but to order tartrate of iron and opium.



On April the 5th he consented to have the operation performed under chloroform. A large phagedenic chancre was found situated under and partly including the meatus. This was swabbed with nitric acid while he was still under chloroform. By next morning the whole of the cut surface had taken on specific action, and I had then to treat a syphilitic ulceration encircling the penis and extending up along the frænum to the meatus. Caustics were out of the question, partly from his great dread of the slightest pain, partly from the great extent of surface to which they would have to be applied. My fumigator was used with the greatest success, the ulcerated surfaces drying up under its use, and in seven days the entire sore, except the spot corresponding to the original chancre, was healed. In the course of six days more this also yielded to the same treatment, and he was discharged from hospital on the 2nd of May, having been kept in for several days after the sore had been healed.

CASE III.—D. B., aged twenty-five, was admitted into Jervis-street Hospital, March 22nd, suffering from phimosis. A chancre was felt on the upper part of the glans, and the prepuce covering it was dark-coloured and sloughing. Ordered quinine, iron, and opium.

March 23rd.—The gangrenous portion of the prepuce had separated, and the glans protruded through the opening thus formed. A deep sloughing chancre was exposed on the upper part of the glans, and a line of chancrous ulceration extended round the penis in the line of junction of the prepuce and glans. The edge of the perforation was, of course, also chancrous. The chancre was cauterised with nitric acid, and all the ulcerated surfaces were fumigated every morning with calomel. A cure rapidly followed. The chancres being healed, the now pendulous prepuce was snipped off on the 28th, and he left the hospital cured on the 2nd of April.

CASE IV.—J. MacA., aged forty-one, was admitted into Jervis-street Hospital on the 2nd of April, suffering from extensive syphilitic ulceration. The diseased process was going on over the whole of the left side of the forehead and upper part of the same side of the nose, extending from the eyebrow close to the roots of the hair, and from a line with the outer angle of the orbit to the median line of the nose and forehead. In some places the ulceration extended to the periosteum, and on the side of the nose the

bone was diseased. From the oedematous condition of the upper eyelid I found it almost impossible to examine the eye. Ordered quinine and iron internally, and the ulcerated surface to be fumigated with calomel every morning.

I was anxious to see what effect this particular treatment would have in this case, it being a typical example of tertiary ulceration, where the internal administration of mercury was inadmissible. Its effect on the sore was well marked. Healthy granulations sprung up; cicatrisation proceeded rapidly. He left the hospital on the 24th of April, the ulcers being completely healed, and able to use the eye—some pus, however, still passing from the inner angle, due to disease of the nasal process of the superior maxillary or lachrymal bones.

The foregoing cases, selected from a number of others, are sufficiently striking, from the amount and severity of the diseased action present, and from the rapidity and completeness of their cure, to recommend a more extended trial of the apparatus; and it will be perceived that this plan of treatment is applicable to ulcers occurring in all stages of the disease.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Accessory Lobes of the Human Lungs. By EDWARD W. COLLINS, M.D., Univ. Dub.; Demonstrator of Anatomy in the University of Dublin. Trans. Roy. Irish Acad., Vol. XXV. 4to, 8 pp.

THIS is a most valuable record of an instance of a rare form of irregularity affecting the right pleura and lung, met with by the author in the course of his demonstrations last session. In the right pleural cavity was found a fold, consisting of a reduplication of the costal pleura and containing the vena azygos in its free margin, which, descending from the upper part of the cavity, imperfectly divided it into two, and thus, by constricting the lung, gave the appearance of an accessory lobe. This mass of lung-tissue was pyriform, and measured about four inches in length, by two and a-half in diameter, while the diameter of its peduncle was but one and a-half inches. It was situated superiorly, posteriorly, and internally, and lay on and beside the bodies of the five upper dorsal vertebræ. No special bronchus was supplied to it.

The author has been able to find but seven similar instances recorded. In all these the position of the fold and the relation of the vena azygos were the same. In six the irregularity was on the right side, and in one only on the left. In this latter the foetal condition of the left vena azygos had persisted; and that vessel, passing through the free margin of the fold, opened into the left vena innominata.

The author agrees with Professor Cleland in attributing the irregularity to some accidental circumstance in early foetal life, whereby the vena azygos, when by the descent of the heart its relations become altered, notches the lung, instead of slipping behind it. In the instance met with by the author the fold was clearly limited externally by the superior intercostal vein; and although no mention is made of this fact in any of the seven cases

alluded to, the author is induced to believe that this relation is as constant as that of the vena azygos itself, and of much importance in determining the irregularity.

There is one statement made by the author to which we must take exception. He claims for this form of irregularity the exclusive right to the title "accessory lobe," and lobes resembling the lobus impar of quadrupeds, described by M. Pozzi and Professor Rektorzik, as well as portions of lung separated by shallow grooves, he would characterise as merely "examples of that redundant lobulation not unfrequently seen in other viscera." Now, if we are to act *strictly* in accordance with analogy, it is surely to conditions such as these that the term "accessory lobe" ought to be applied. For in these, the lobe, such as it is, is at least primary; while in that form which is the subject of the memoir it is merely secondary to the constriction produced by the irregular position of the vena azygos.

The value of the memoir is enhanced by a chromo-lithograph of the author's preparation, and by three wood-cuts illustrating the cases referred to.

WORKS ON HYGIENE.

1. *A Manual of Public Health.* By W. H. MICHAEL, F.C.S., Barrister-at-Law; W. H. CORFIELD, M.D., Professor of Hygiene, University College; and J. A. WANKLYN, M.R.C.S. Edited by ERNEST HART. London: Smith, Elder, & Co. 1874. 8vo; pp. 374.
2. *Public Health: a Popular Introduction to Sanitary Science.* Part II.—War in its Sanitary Aspect. By W. A. GUY, M.D., Professor of Hygiene, King's College. London: Henry Renshaw. 1874. 8vo; pp. 342.
3. *Microscopic Examinations of Air.* By D. CUNNINGHAM, Surgeon H.M. Indian Medical Service. Calcutta Government Printing Office. 4to; pp. 58.
4. *Sanitary Arrangements for Dwellings.* By WM. EASSIE, C.E. London: Smith, Elder, & Co. 1874. 8vo; pp. 188.
5. *Cremation: the Treatment of the Body after Death.* By Sir HENRY THOMPSON, F.R.C.S., M.B. London: H. S. King & Co. 1874. Pamphlet; pp. 55.

6. *La Cremation des Morts en Italie.* Par le Docteur PROSPER DE PIETRA SANTA. Paris: F. B. Baillière et Fils. 1873. pp. 19.
7. *Hygiene of Schools.* By J. B. BUDGETT, M.D. London: H. K. Lewis. 1874. 8vo; pp. 88.
8. *Hints on Public Health.* By HENRY J. ALFORD, M.D., Lond., Medical Officer of Health, Taunton Sanitary Districts. London: H. K. Lewis. 1874. Pp. 58.

THE Public Health Acts of 1872 and 1874, creating, as each did, a corps of Public Health Officers, and providing every part of the United Kingdom with sanitary officials, have also produced an abundant crop of works relating to hygiene. Dr. Parkes' excellent "Manual of Hygiene" has made its appearance in the shape of a fourth edition for the use, not merely of Medical Officers of the army and navy, but also for civil Medical Officers of Health; Dr. Wilson has written a work on Public Health; Dr. Edward Smith, Manuals for Officers of Health and Inspectors of Nuisances; and now we have another work on Hygiene, the conjoint production of four men well known to sanitarians—Messrs. Ernest Hart, Michael, Corfield, and Wanklyn. This book ought to be a good one, seeing that so many able hands have been employed on it. When we opened its pages we expected to find something really good, nor were we disappointed. Hart's "Manual of Public Health" is admirably adapted to the wants of the great majority of Medical Officers of Health, as it gives them sufficiently full information in reference to all the really important matters likely to engage their attention. It may not in all cases supersede all other works of the same class; those who intend to devote their whole attention to sanitary studies may require larger treatises and works on special departments of hygiene, but these health officers who are also medical practitioners will find sufficient information in Mr. Hart's manual. There is, no doubt, some slight disadvantage in the preparation of a public health manual by several persons. Each touches upon topics which have to be more fully dealt with by one or more of his *collaborateurs*. For example, water is treated upon in different parts of Mr. Hart's manual, which is somewhat inconvenient. This disadvantage—necessarily incidental to a work of the kind—and the want of a general index, are all we can find fault with in Hart's "Manual of

Public Health." On the other hand, we can justly state that the information given is most accurate and relevant—nothing not likely to be of some use to the health officer being introduced into the work.

Dr. Guy, in his valuable book, deals principally with the sanitary evils which arise out of the concentration of numbers of men for the purpose of war, but incidentally it gives some very interesting information in reference to the hygiene of civil life. The evils of over-crowding in camp, barrack, ship, and hospital, are graphically delineated and illustrated by numerous references to many painful episodes in the military and naval history of Great Britain.

Dr. Cunningham gives us in his book a series of engravings exhibiting the microscopic appearance of different kinds of dust floating in the atmosphere. He also gives a very interesting *resume* of the observations made in reference to the solid impurities of the air from 1830, when Ehrenberg wrote a paper on that subject in "Poggendorff's Annals," to the period of Dr. Cunningham's own investigations in 1872.

Mr. Eassie is a well-known sanitary engineer, a member of a profession just now very limited in number indeed, but likely to be both numerous and amply employed in the immediate future. His book is a good one, plain and practical; and we may add that the advice given in it is *practicable*. It is a work which the physician as well as the architect may study with advantage, for the information which it gives might often enable the former to trace the origin of typhoid in his patients to some faulty construction of drain or water-closet.

The pamphlets on Cremation are referred to in our "Report on Public Health."

Dr. Budgett's little book is one which should be in the hands of every schoolmaster. We fully endorse the views set forth in it; they coincide with those already expressed in one of our Reports on Public Health.

The last work on our list is of a popular, scientific character, and is founded upon, and is chiefly a re-publication of, some papers published by Dr. Alford in the *Somerset County Gazette*, under the

title of "Occasional Papers on Public Health." Country newspapers are seldom so fortunate as to be the means of conveying such valuable information to their subscribers as that contained in Dr. Alford's little work. Now that a Public Health Act has come into force in Ireland, we think the Irish provincial press might well take a hint from the *Somerset Gazette*, and devote a portion of their columns to instructing their readers in hygiene. Dr. Alford touches shortly upon all the questions connected with public health—air, water, food, dwellings, sewage, contagious disease, and disinfectants, are treated of in as concise and popular a manner as is consistent with accuracy. Although written originally for Taunton and Somerset people, we can confidently recommend Dr. Alford's work to such non-professional readers as wish for a general and correct outline of matters connected with public health.

WORKS ON MATERIA MEDICA.

The Specific Action of Drugs on the Healthy System: an Index to their Therapeutic Value, as deduced from Experiments on Man and Animals. By ALEXANDER G. BURNESS, M.R., C.M., Univ. Aberd., and F. J. MAVOR, M.R.C.V.S. London: Baillière, Tindall, & Cox. 1874. Pp. 184.

THE book before us is a prominent example of the diversity in the verdicts of reviewers on the works submitted to them. This volume has been lauded in no measured terms by one, characterised as "from first to last a disastrous performance" by another, and received with half-hearted welcome by a third, who claims, and not without warrant, Dr. Burness as an unavowed adherent of homœopathy.

We have seldom met with a performance which promises so much and fulfils so little. The book is altogether unsatisfactory, full of crude speculations, extravagant assertions, and untrustworthy experiments. We do not hesitate to say that the authors completely fail to establish a single one of the positions which they formally lay down, and, indeed, they do not appear to have the least glimmerings of the conditions under which a physiological or therapeutical inquiry should be conducted. From the joint labours of a medical man possessing an university *imprimatur*, and of a veterinary surgeon, some valuable information might reasonably

be expected, especially in comparative pharmacodynamics. Yet it is difficult to conceive how the "long experience and numerous investigations" of two observers should issue in such an abortive outcome. This may appear to be unnecessarily severe language, but, in the interests of scientific therapeutics, we feel bound to warn our readers from being misled by the pretentious title of the work.

In justification of the strictures we have made, we shall quote *verbatim* an experiment designed to exemplify physiological antidotism, and a case or two which the authors consider to "illustrate clearly what we mean by specific treatment":—

"A horse was given $1\frac{1}{2}$ grain of strychnine, which induced rigidity of the muscles, &c., within an hour; then 10 grains of acetate of morphia was (*sic.*) given, and in $1\frac{1}{2}$ hour (*sic.*) the horse was nearly well and quiet; while $3\frac{1}{2}$ hours after taking the morphia he had entirely recovered" (p. 23).

What possible inference can be drawn from such a loose statement beyond the fact that the animal survived the two doses of poison? Again:—

"(h) In the following case the patient had been subject to irregular action of the bowels, which he had endeavoured to remedy, unsuccessfully, by the use of various nostrums. Under the following treatment the deranged function was restored—viz., restorative doses of tincture of *nux vomica* and sulphur."

This is all we are told. As an instance of specific treatment in animals:—

"(a) A horse with the following symptoms:—'Pulse 40, temperature 100° , discharge from eyes and nostrils, attended with sneezing'—was treated with restorative doses of sulphide of potassium and belladonna, and in a few days was restored to health."

We can assure our readers that these are average samples of the general style and reasoning of the book.

Remarks on the Uses of some of the Bazaar Medicines and Common Medical Plants of India. By EDWARD J. WARING, M.D. Second edition. London: J. & A. Churchill. 1874. Pp. 212.

In the exceptional circumstances of an enormous country like India, where, of necessity, large numbers of people, such as missionaries, officials, and those engaged in commercial pursuits, are

often far removed from regular medical aid, Dr. Waring's compact little work must supply a pressing want.

The author seems to have performed his task with good judgment. About eighty common and readily procurable indigenous drugs are selected, their native synonyms given, and, under each article, a plain and practical account of its uses is set forth; while in Part II. a synopsis or index of diseases, with their appropriate treatment, is exhibited as a guide in cases of emergency. In Appendix A we have the Royal Humane Society's "Directions for restoring the apparently dead from drowning;" and in Appendix B. is furnished a "Summary of treatment of persons bitten by venomous snakes," reprinted from Dr. Fayerer's splendid work, "The Thanatophidia of India."

A few European drugs, for which the Indian bazaars supply no adequate substitutes, are recommended to be kept in store; but, with the exception of opium, the actively poisonous drugs are omitted, "and those who follow the directions may feel assured that, with the exercise of ordinary prudence, if they fail to do good, they will at any rate do no harm."

Dr. Waring tells us that animal fats, excepting freshly-prepared ghee, *i.e.*, clarified butter, cannot be used in Indian pharmacy, on account of the heat and the religious prejudices of the natives. Fortunately, India supplies at least two vegetable substitutes—viz., Kokum butter (*Garcinia purpurea*) and Piney tallow (the expressed oil of *Vateria Indica*), and, in addition to these, Dr. Waring has introduced "ceromel," a mixture of wax, 1 part, and honey, 4 parts.

The Student's Guide to Materia Medica. By JOHN C. THOROWGOOD, M.D. London: J. & A. Churchill. 1874. Pp. 318.

THIS little work has one good point in which it differs from other text-books on *Materia Medica*, and that is, the omission of the text of the British Pharmacopœia, which the author assumes that every student possesses and which he is supposed to know. So far as a book of its moderate compass can go, it conveys a good deal of information, more especially in the therapeutic remarks; but within its limits it is simply impossible to fulfil the programme sketched out in the preface. Doubtless the author was hampered by the necessity of confining himself within the hard and fast boundary of this series of "smaller text-books" issued by his

publishers. There is nothing novel in the arrangement or method of discussing the various subjects; the classification of the inorganic bodies is perfectly arbitrary, and, in the organic *Materia Medica*, that useless and perplexing arrangement of the articles under their natural orders is followed.

Botanical Tables, for the use of Students. Compiled by EDWARD B. AVELING, B. Sc. London: 1874. Pp. 14.

WE have looked through these tables, and find that they have been carefully compiled from the standard authorities. As an aid to private study or to class-teaching, we think that they will prove very satisfactory; and they are so lucidly arranged and clearly printed that the eye can seize at once the leading features in the classification.

Thomson's Conspectus, adapted to the British Pharmacopœia.
Edited by E. L. BIRKETT, M.D., Cantab. New edition
Longmans, Green, & Co. 1874. Pp. 248.

FOR some years past "Thomson's Conspectus" has, we believe, been a favourite pocket companion with many, and students seem to find it a useful refresher for an examination. From the fact of a new edition being called for, we must conclude that it supplies a want, and, in a small bulk, it presents an epitome of *Materia Medica*, with appendices containing some miscellaneous information, which may prove serviceable in an emergency.

Before another edition is likely to be required, we would suggest to the editor that he should either excise the Introduction, or, at least, re-model it and correct the glaring errors and inaccuracies with which it abounds. Within the compass of fourteen pages are assembled a number of astounding statements which the merest tyro would scarcely venture on.

Take, for example, the following definitions:—"All the acids employed in Pharmacy, with the exception of the hydrochloric, the hydrocyanic, and the hydrosulphuric acids, are supposed to be compounds of *oxygen* with *one or more* combustible substances" (p. ix.). The italics are not ours. Ammonia, the volatile alkali, "cannot be obtained perfectly pure in a solid form" (p. x.). "Metallic salts are either simple combinations of the metals with *oxygen* (*sic.*), or combinations of their oxides with acids" (p. xii.). "Aethers are compounds produced from a new arrangement of the elements

of alcohol, by the agency of the acids, at a heat of 160°" (p. xix.). Fancy a student downfacing an examiner in chemistry with such authority, or describing distilled water as prepared "by getting a pewter tube fitted to the spout of a common tea-kettle, which may be kept cool, when in use, by being wrapped round with wet rags" (p. xvi.). It is a pity that such nonsense should be allowed to disfigure an otherwise handy little compendium.

Sulphur in Iceland. By C. CARTER BLAKE, Doct. Sci. London: E. & F. Spon. 1874. Pp. 51.

THE gist of this pamphlet seems to be to induce capitalists to assist a certain Mr. Lock in profitably working the enormous sulphur deposits in the north of Iceland. Considering the vast demands for sulphur in the arts, together with the not remote prospect of the Sicilian supply becoming exhausted, it is singular that for more than twenty years the abundant and almost inexhaustible stores of sulphur in Iceland have been allowed to lie untouched. Dr. Blake makes out a plausible estimate of the cost of working Icelandic sulphur, which appears, on paper, to be much in favour of that island, and we commend the project to those who have spare cash in their pockets and sufficient enterprise for such an undertaking.

Syllabus of Materia Medica, for the Use of Teachers and Students.
Second edition. By A. HARVEY, M.D., Prof. of Mat. Med., Univ. Aberd.; and A. D. DAVIDSON, M.D., Assistant Prof. London: H. K. LEWIS. 1874.

THERE are about 900 articles and preparations in the Pharmacopœia, and it might well daunt the most zealous student to tell him at the outset of his studies that he must master all the details of this formidable list.

Yet, as in practice the best physicians limit themselves to a very restricted pharmacopœia, so, we believe, that judicious teachers will confine themselves to a much shorter catalogue, and sensible examiners lay particular stress upon those subjects alone, with which it is essential that the student should be acquainted. Drs. Harvey and Davidson seem quite alive to the hindrances which beset the diligent student; and, in order to lessen the difficulties, they have in this Syllabus attempted to assess all the articles in

the *Materia Medica* under four degrees of "relative value," the numeral (1) being affixed to the most important, and (4) to the least important drugs. They propose also to bind down examiners to a certain range of subjects for pass examinations—a limitation which is adhered to in the University of Aberdeen, and a † is prefixed to the articles selected with this view. The intentions of the authors are doubtless praiseworthy if practicable, and there is reason for their strictures on the evils of over-strained teaching, but we cannot forbear observing that their remarks would come with greater force, from avowed reformers of education, if couched in less clumsy English, and with due regard to correctness of spelling.

De l'Emploi Thérapeutique de l'Arsenic. Par le DR. HIPP. BARELLA., Edit. revue et considérablement augmentée. Bruxelles et Paris. 1866. Pp. 565.

THIS goodly-sized volume is a laborious compilation of the writings and opinions of others, without any pretensions to originality.

The work is divided into six books. The first treats of paludal neuroses or intermittent fevers; the second of "neuropathies;" the third deals with the uses of arsenic in cutaneous diseases; the fourth treats of internal diseases of an asthenic and cachectic nature; the fifth of the external uses of arsenic; and the sixth of the physiological effects of arsenic.

Dr. Barella is enthusiastic, *more Gallico*, on the virtues of arsenic, and he is of opinion that Fowler's solution fairly represents and may be substituted for all other arsenical preparations. It may interest some of our readers to see Dr. Fowler's own formula, which we quote from Dr. Barella:—

Solutio mineralis.

Ry.—*Arsenici albi in pulverem subtilissimum triti,*

Salis alcalini fixi vegetabilis purificati, singulorum grana 64,

Aqua fontanæ distillatæ, libram dimidiam.

Immitantur in ampullam florentinam, quâ in balneo arenæ posita, aqua lente ebulliat, donec arsenicum perfectè solutum fuerit. Deinde solutioni frigidæ adde:

Spiritus lavendulæ compositi, unciam dimidiam,

Aqua fontanæ distillatæ, libram dimidiam, plus vel minus,

Adeo ut solutionis mensurâ libra una accureta sit, vel

Potius pondere unciae quindecim cum dimidiâ.

On the Past, Present, and Future of Therapeutics; Introductory to the Course of Materia Medica at St. Mary's Hospital. By ROBERT FARQUHARSON, M.D. Edinburgh: 1874.

A SUPERFICIAL sketch of the subject, which contains nothing that calls for special comment. In one place (p. 9) the author decries an accurate acquaintance with *Materia Medica* as practically useless, while a little further on (p. 20) he very properly admonishes his hearers to "study prescriptions well, look at and smell, and even taste drugs, and try to avoid those mistakes and inaccuracies which have ruined many men."

Dr. Pereira's Elements of Materia Medica and Therapeutics. Edited by ROBERT BENTLEY, F.L.S., and THEOPHILUS REDWOOD, Ph.D., F.C.S. London: Longmans, Green, & Co. 1874. Pp. 1,093.

THIS may be considered as the third edition of the abridgment of Pereira's original work, although it differs from the last edition, published in 1872, only in containing comments on the "additions" recently made to the *Pharmacopœia*. It is needless to say that the work contains an abundant store of information for the practitioner and student. It is clearly written, admirably printed, and has been carefully edited up to the present state of chemical and pharmaceutical knowledge.

In the event of another edition being called for, we would suggest to the editors the propriety of placing their names at the head of the title-page instead of Dr. Pereira's.

It is hardly fair to the memory of the late Dr. Pereira to associate his name with an abridgment made after his death, in which all the essential characters of his great cyclopædia are lost, and even the arrangement is altered. So much "levelling up" work has necessarily devolved upon the present editors, that they may justly claim the book as their own, while, at the same time, acknowledging their obligations to Pereira's vast accumulations.

Traité Pratique d'Auscultation appliquée au Diagnostic des Maladies des Organes Respiratoires. Par le DR. MAILLIOT, Professeur particulier de percussion et d'auscultation; ex Vice-Président de la Société Anatomique, etc., etc. Paris. J. B. Baillière et Fils. 1874. Pp. 542.

THIS work is a highly finished and elaborate treatise on the subject it treats of. The author undertook a special study of the English language in order to make himself better acquainted with the investigations of English and American writers on the subject, and his quotations from the works of Elliotson, Stokes, Williams, Hope, Walshe, Bellingham, Flint, Graves, &c., show the extensiveness of the research which he has taken the trouble to make. The first chapter discusses fully the auscultation of the upper air passages in their physiological and pathological condition; the second deals in the same way with the intra-thoracic parts of the respiratory organs; the third is devoted to the physical signs afforded by the pleura, and to the auscultation of voice and cough. The titles of those sections of the latter portion of the work which are headed "auscultation of the voice" and "cough," by no means convey an adequate idea of the amount of information which is presented to the reader. The book is one which will prove most valuable for reference to, and a very complete analytical table of contents affords facilities for doing so.

Notes and Observations on Diseases of the Heart, and on the Lungs in connexion therewith. By THOMAS SHAPTER, M.D., Fellow of the Royal College of Physicians; Senior Physician to the Devon and Exeter Hospital, &c., &c. London: J. and A. Churchill, New Burlington-street. 1874. Pp. 237.

THE modest title of this book is the more charming when we find it used by an author who for forty-seven years has had extensive opportunities for observation, and who, moreover, has written well on other subjects, such as the "History of the Cholera in Exeter in 1832," &c. As the name implies, the book does not contain systematic descriptions of the diseases of the heart; it deals more with the elucidation of its symptomatology. It is a work most creditable to the industry of one who has not allowed the exigencies of practice to interfere with the production of a book which must have cost no little time and trouble in its preparation.

PART III. HALF-YEARLY REPORTS.

HALF-YEARLY REPORT ON PUBLIC HEALTH.*

By CHARLES A. CAMERON, Ph.D., M.D., L.K. & Q.C.P.; Prof. of Hygiene in the Royal College of Surgeons; Lecturer on Chemistry in Steevens' Hospital Medical College, and the Ledwich School of Medicine; Medical Officer of Health and Analyst for the City of Dublin, &c.

PUBLIC HEALTH ACT (IRELAND), 1874.

ON the 7th August, 1874, the royal assent was given to an "Act to Amend the Law Relating to the Public Health in Ireland." This is the only general measure, of a sanitary character, which renders its own more important provisions compulsory. It enacts that now and henceforth every dispensary doctor shall, in virtue of his position, be a Medical Officer of Health; and in every Poor Law Union and town of more than 6,000 inhabitants, it renders compulsory the appointment of at least one Inspector of Nuisances. This Act constitutes the Local Government Board of Ireland the highest Public Health authority in the country, and entrusts to it important directive and controlling powers in relation to the local sanitary authorities. As the Act increases the work of the Poor Law Medical Officers, so also it increases their salaries. It was the intention of the framers of the Act that the amount of this increase should be determined by the Local Government Board, but the clause to that effect was amended so as to allow the local authorities to settle this important point. It is to be hoped that they will deal liberally with their medical officers, and it is well that they should bear in mind that their decisions on this point are subject to the approval of the Local Government Board. As in England one-half of the salaries of the Medical Officers of Health are paid out of the imperial exchequer, there is little doubt but that a moiety of the

* The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of this Journal.

Irish Health Officers' stipend will be paid out of the same fund, agreeably to section 10 of the Public Health Act, 1874. When, therefore, a Board of Guardians votes an increase of £30 a year to their Medical Officer, as remuneration for his work as Health Officer, it really only gives him £15 a year out of the Union fund. The Local Government Board state that they will only recommend to the Treasury to recoup to the local authorities portion of such additional salaries as may not exceed, in the case of Consulting Medical Officers, one-third of their existing salaries as Poor Law Officers, and as Medical Officers of Health one-fourth of their present salaries.

The Public Health Act (Ireland), 1874, is chiefly intended to organise an administration for the purpose of carrying into effect the sanitary laws previously enacted. No doubt it will in due time be followed by other Acts, framed for the purpose of dealing with sanitary evils which existing statutes are unfitted to suppress. Perhaps, too, we may have before long the existing sanitary enactments, codified, amended, and reconciled with each other, for at present many of them conflict. They are very numerous, too, if we include with the purely Sanitary Acts those relating to the protection of life and health, such as the Storage of Petroleum Act, the numerous Acts in reference to mines and factories, and the Building Acts.

The sanitary condition of the majority of Irish towns is far from satisfactory. Most of them are badly drained, and are deficient in good supplies of water. Their death-rates are often above the normal standard. This unsatisfactory state of things is to some extent due to want of wealth. Rich towns are more likely to be properly sewered and abundantly supplied with pure water than poor ones.

Under the provisions of the Public Health (Ireland) Act, 1874, this country is divided into sanitary districts of two kinds, termed, respectively, urban and rural. The former comprise Dublin and the incorporated towns, the towns and townships with local Acts, and all towns of more than 6,000 inhabitants having municipal governing bodies, under the Act of Geo. IV., relating to the lighting, cleansing, and washing of towns, under 3 & 4 Vict., cap. 108, and under 17 & 18 Vict., cap. 103. The rural districts comprise the Poor Law Unions, except such parts of them as are included with urban districts. There are 38 urban, and 163 rural districts.

The present governing bodies of these districts, corporations and

commissioners, are the sanitary authorities therein. They are entrusted with the execution of the sanitary Acts, and have transferred to them all the sanitary powers formerly exercised by the "sewer," and "nuisance" authorities. During periods of epidemics, the powers wielded by the municipal authorities, relative to disinfection, burial of the dead, the conveyance of the sick, the providing of hospital accommodation, &c., are transferred temporarily to the Board of Guardians of the urban district. The sanitary authorities in the towns are, for the first time, brought under the supervision of the Local Government Board; whilst the same authority continues to exercise that control over the actions of the Boards of Guardians which it always did under the provisions of the Poor Law Acts.

In districts where the Baths and Washing-houses Acts, and the Labouring Classes Lodging-houses Acts, are not in force, the local authorities may adopt and apply them. The Local Government Board may also, on the application of the sanitary authority, repeal, alter, or amend any local sanitary Acts, diminish the area of the district in which they are in force, or extend their operations to other districts. These are considerable powers indeed.

The Local Government Board may separate districts or towns of not less than 6,000 inhabitants from rural districts, and either erect them into urban districts or add them to urban districts already in existence; it may also add any town or other urban district to the rural district adjoining or enclosing it. All this can only be done on petition from the districts affected, and the order of the Board must be confirmed by Parliament before it becomes effective. It is to be hoped that as many small towns as possible may be united with rural districts, as their sanitary authorities are less likely to put the laws relating to health into force than the Boards of Guardians. Where part of a Union is included within an urban district, the representatives from it are not entitled to vote on sanitary questions relating to rural districts. This is fair enough, but in some cases it will seriously diminish the number of the members of the Board of Guardians competent to deal with sanitary measures. Out of the 32 elected Guardians of the South Dublin Union, 10 only are representatives of rural districts. For statistical and other reasons, it were desirable that the City of Dublin should form a single Union, and that the rural divisions of the present South and North Dublin Unions should be erected into separate Unions, or joined to rural Unions, such as Rathdown. The North Dublin Union

Workhouse would answer for a county Union, and the South Dublin Workhouse for the city one. A large number of the deaths in these Workhouses, which serve to swell the city death-rate, should be added to that of the county.

Under the Public Health Act every Medical Officer of a Dispensary becomes *ex officio* a Medical Officer of Health. The local authorities are also to appoint, when so required by the Local Government Board, a Medical Superintendent Officer of Health, and such other officers as may be necessary for the purpose of carrying the sanitary laws into effect. A portion of the salaries paid to these officials is to be recouped to the local sanitary authorities by Parliament. In England, one half of the salaries of the sanitary officers has, up to the present, been paid out of the imperial exchequer; presumably a like proportion of the Irish Health Officers' salaries will be provided for by Parliament. The Act enables sanitary districts, with the approval of the Local Government Board, to combine, and virtually form one district for the purpose of obtaining a supply of water, or for sewerage of the united district, or "for any other purpose of the Sanitary Acts or Burial Grounds Acts." In virtue of this power, several sanitary districts might unite and conjointly appoint a Superintendent Medical Officer of Health. It is to be hoped that a union of sanitary districts for such a purpose will become general throughout the country, for the emoluments which a single sanitary district could offer would not be likely (except in the case of a few large towns) to secure the services of well educated medical men, prepared to devote their whole time to sanitary matters. It is to be regretted that the Local Government Board has not the power to direct the union of sanitary districts for certain purposes—the appointment of Superintendent Officers of Health, or consulting Medical Officers of Health, as the Local Government Board terms such officers. The chief duties (unfortunately mostly permissive only) of the sanitary authorities are to procure supplies of pure water to prevent the pollution of air and water by foul liquids, gases, vapours, and dirt of all kinds; to prevent over-crowding of dwellings; to see that the houses of the labouring classes are in proper tenantable order; to prevent the keeping of the lower animals under such conditions as make them a nuisance injurious to health; to prevent the sale of adulterated and of diseased and otherwise unsound food; to prevent the sale of adulterated food; to make sewers; to cleanse the streets and roads; to provide

recreation grounds for the people; to erect baths and wash-houses; to take steps for the prevention of the spread of contagious diseases; to bury the very poor, and to provide and maintain burial grounds for rich and poor; to disinfect clothing and bedding; to construct sewers and drains. These important duties have hitherto been discharged fully only by civic authorities, henceforth they are to be discharged as efficiently (more so, let us hope) by the Boards of Guardians.

The Local Government Board has just addressed sealed orders to the different sanitary authorities, from which we make the following extracts:—

“SANITARY ORDER No. 1.

“Relating to Rural Sanitary Districts consisting of entire Unions.

“To the Guardians of each of the Unions named in the Schedule A to this Order annexed; to the Medical Officers of the Workhouse and of the Dispensary Districts therein; to the Clerk and other paid Officers thereof; and to all whom it may concern:

“Whereas, by the ‘Public Health (*Ireland*) Act, 1874,’ each of the said Unions has been constituted a Rural Sanitary District, and the Guardians of the Union are, as such, declared to be the Rural Sanitary Authority:

“And whereas, by the Tenth Section of the said Act it is enacted that every Medical Officer of a Dispensary District shall be a Sanitary Officer for such District, or for such part thereof as he shall personally be in charge of, and that every Sanitary Authority shall appoint in addition such other Sanitary Officers as the Local Government Board shall in each case direct:

“Now we, the Local Government Board for Ireland, do, in the case of each Union in the said Schedule named, direct the Guardians to appoint so many Sanitary Sub-Officers as the Guardians shall with our consent determine; and we do hereby direct and declare that the Relieving Officers of the Union and the Collectors of Poor Rates shall be alike eligible for the office of Sanitary Sub-Officer.

“And we do hereby further direct that the Guardians of the Union shall appoint one Consulting Sanitary Officer, and that for this office every Medical Officer of the Union, including the Workhouse Medical Officer or Officers, shall be eligible, and also, subject to our approval, any other Medical Practitioner having the same qualifications; and shall also appoint an Executive Sanitary officer, for which office the Clerk of the Union, or any Assistant of the Clerk appointed by the Guardians, shall be eligible:

" And whereas, by the said Tenth Section it is further provided that the Local Government Board shall assign to the Dispensary Medical Officers, and to the other Sanitary Officers, their respective duties and functions in the discovery, or inspection, or removal of nuisances, in the supply of pure water, in the making or repairing of sewers and drains, or in generally superintending the execution of the Sanitary Laws within the District :

" Now therefore, we, the Local Government Board, do hereby assign to the Sanitary Officers and other Officers to be appointed under this Order their respective duties and functions as follows:—

" **I. INSPECTORIAL DUTIES**—1. Every Sanitary Sub-Officer who shall observe, or be informed of any matter demanding, in his opinion, attention from the Sanitary Officer of the Dispensary District in which he has discovered the same, shall notify it forthwith to the Sanitary Officer in writing, specifying the nature of the case in the Form (a) in the Schedule B to this Order annexed, and shall preserve a copy thereof in duplicate.

" 2. Every Sanitary Officer who shall have been apprized officially or shall otherwise become cognizant of any matter demanding his attention as aforesaid, shall as soon as conveniently may be, visit the locality, and if, after due inspection, he finds such matter to involve danger to public health, he shall report thereon to the Board of Guardians, in the Form (b) in the said Schedule B, showing the source from which he received the information, and the date thereof, and the date of his visit of inspection ; he shall also give a sufficient description of the nature of the case, and the remedy which he recommends to be adopted, and shall preserve a duplicate of every report.

" **II. EXECUTIVE DUTIES**.—1. The duty of the Executive Sanitary Officer shall be to attend every meeting of the Guardians acting as a Sanitary Authority and to take their directions from time to time on the Sanitary business of the Board, and on the Reports of the Sanitary Officers, and all proceedings arising thereon, and to see that the same are carried out and brought to a conclusion where practicable, in pursuance of the Orders of the Board.

" 2. In furtherance whereof we do hereby direct that every Sanitary Officer and Sub-Officer of the Union shall, on receiving directions from the Executive Sanitary Officer, attend and assist in all proceedings in which his attendance or assistance may be required.

" 3. The duty of the Consulting Sanitary Officer shall be to attend meetings of the Guardians acting as Sanitary Authority, whenever required to do so, and to advise them on all matters and proceedings requiring medical knowledge and advice in the administration of the Sanitary Laws.

" 4. The proceedings of the Board of Guardians acting as the Sanitary

Authority shall be recorded in the same manner as the Minutes of the Proceedings of the Board under the Poor Law and Medical Charities Acts, and a copy of such record shall be annexed to the ordinary Minutes of Proceedings of the Board of Guardians, and transmitted to the Local Government Board by the Clerk of the Union with such last mentioned Minutes.

“ III. STATISTICS OF DISEASE.—It shall be the duty of the Consulting Sanitary Officer and of the Sanitary officers to furnish from time to time to the Local Government Board such statistical returns of Sickness and Disease in the Workhouse and its Hospitals, and in the Dispensary Districts, as shall from time to time be required from them respectively.

“ IV. THE FIRST MEETING.—The First Meeting of the Rural Sanitary Authority in each case shall be on the day of the Second Weekly Meeting of the Board of Guardians after the receipt by them of this Order.”

Schedule A contains the Names of the Unions to which this Order applies, and which includes all that are wholly rural.

SANITARY ORDER NO. II.

Relates to Rural Sanitary Districts consisting of parts of Unions of which other parts are Urban Sanitary Districts, and directs the appointment of Sanitary Officers for the Rural Districts.

SANITARY ORDER NO. III.

Relates to Urban Sanitary Districts, except the City of Dublin, Limerick, Cork, and Belfast, and the direction with reference to the appointment of Officers are identical with those given in Order No. 1.

Belfast, Cork, and Limerick, have not, up to the present, been dealt with by the Local Government Board; but the Board has ordered that in the capital the sanitary organisation shall not be disturbed, but that it shall consist of a Consulting Sanitary Officer, a Medical Officer of Health, beside the fourteen Dispensary Medical Officers as District Officers of Health, an Executive Sanitary Officer, and such Sanitary Sub-Officers as may be required. Belfast, Cork, and Limerick, will probably be each provided with a Superintendent Officer of Health, besides the indispensable Sanitary Officers specified in the Act. Limerick, though a city of 40,000 inhabitants, has not a Medical Officer of Health, and yet, strange to say, it is provided with a Public Analyst. Neither has Waterford a Medical Officer of Health, though it also has a Public Food Analyst.

The Public Health Act, 1874, empowers the local authorities to appoint, if required to do so by the Local Government Board, a

Medical Superintendent Officer of Health. In the Orders issued to the local authorities by the Local Government Board, the former are directed to elect a Consulting Medical Officer of Health, and this officer, we presume, is the equivalent of Medical Superintendent Officer of Health. The duties of this officer are briefly defined in the order of the Local Government Board. We cannot help regretting that the Public Health Act of 1874 does not provide for the appointment of Consulting, or rather Superintendent, Medical Officers of Health for every district containing 100,000 inhabitants and upwards.

We have the greatest respect for the Dispensary Physicians—they are a medical corps of which any nation might be proud; but still the great majority of them have not devoted their attention to sanitary science. In the year 1867, in a course of lectures on Public Health, delivered in the Royal College of Surgeons, we strongly advised the employment of the Dispensary Physicians as Medical Officers of Health; but at the same time we insisted upon the importance of having a small number of highly-skilled sanitarians employed as Superintendent Health Officers. On this subject we made the following remarks:—

“Political medicine, strictly speaking, concerns itself but little relative to the cure of disease; the problem which it seeks to solve is, how disease may be averted. The results of the investigations of the pathologist and the physiologist establish more or less accurately the nature of a malady, and suggest the appropriate treatment. The cultivator of political medicine, applying the knowledge acquired by the labours of the physiologist and the pathologist to his own purpose, endeavours to remove the cause or causes which produced the disease. Those who devote themselves to the study of public hygiene require, therefore, a more extended knowledge of science than the mere physician or surgeon, who occupies himself solely with the curative treatment of disease. Sanitary science is made up of many branches of knowledge, and the great questions relating to the public health can only be successfully answered by those who combine in themselves the knowledge—more or less profound—of the physician, the chemist, the physicist, the botanist, and the geologist. There are thousands of medical men who, though capable of skilfully treating all the commonly-occurring diseases, do not understand the use of the microscope, could not perform the simplest chemical analysis, nor, probably, explain the principles of ventilation. There is much wanted a class of highly-

* Lectures on Health. Pages 10 and 11. London: Cassell, Petter, and Galpin. 1868.

educated medical men who would wholly devote themselves to sanitary science. Physicians who are so fortunate as to have numerous patients cannot, as a general rule, spare time for purely scientific pursuits not directly affecting their practice; and it requires no argument to prove that very few active practitioners could successfully study such subjects as, for example, the water supply and sewerage of towns, the heating and ventilation of dwellings, epizoötics dangerous to man, and epiphytic outbreaks—all of which relate to the public health. There is a wide field for the labours of the professors of preventive medicine. A large proportion of the deaths which daily occur in these countries is due to diseases which hygienic means, vigorously employed, are capable of extirpating."

Under the order of the Local Government Board, it is still open to urban and rural authorities to unite or agree in appointing the same person as Consulting Sanitary Officer for several districts. Such an officer should be debarred from private practice, but might be permitted to hold such offices as the following:—Medical officer to a hospital or other public institution, Professor or Lecturer in a university or medical school, Medical Inspector under the provisions of the Contagious Diseases Prevention, the Merchant Shipping, or the Factory, Acts, or Inspector under the Alkali Nuisance Prevention Acts. For two years before the passing of the Public Health (Ireland) Act, many students of, and even graduates in, medicine, speculating on the probability of employment being created under some such measure, had been qualifying themselves for appointments as Sanitary Officers. One gentleman of high medical qualifications has worked with us for the last two years solely with the view of qualifying himself for a public health appointment. We cannot rightly understand what the duties of Consulting Medical Officer of Health are intended to be under the order of the Local Government Board. Every sanitary district must be provided with one. There are several townships near Dublin—Clontarf, Killiney, and Kilmainham, for example—with only 2,000 to 3,000 inhabitants, each of which is obliged to elect a Consulting Medical Officer of Health, beside the *ex-officio* Health Officers. In other cases, however, we can understand how the Consulting Medical Officer of Health may be called upon to supervise the work done by the *ex-officio* health officer. In the larger townships—Kingstown, Rathmines, &c., and the larger towns and unions where there are two or more dispensary districts, there might be still larger sphere for the Superintendent or Consulting Health

Officer; but, unfortunately, up to the present, with hardly an exception, the Dispensary Doctors have been appointed Consulting Medical Officers of Health. Suppose a district where there are two Dispensary Physicians, both are Health Officers, and paid as such, and then one of them is made, in addition, a Consulting (the equivalent for Superintendent) Medical Officer of Health to supervise *his own* and his colleague's work. Although in England all the great writers on sanitation, including Rumsey and Acland, are altogether opposed to the employment of Poor-law Officers as Health Officers, still we believe that in Ireland it was the proper thing to do exactly the reverse; but we do not think that it was judicious to compel every local sanitary authority in the county to appoint Consulting Medical Officers of Health at their very first meetings. The opportunity for forming in Ireland large administrative areas for sanitary purposes, which might have been so easily afforded by the framers of the Public Health Act, has not been taken advantage of; and the appointment of about 200 Consulting Officers of Health, made, or being made, by the sanitary authorities, renders it very unlikely that there will be for many a long year to come large districts placed under well-paid Superintendent Health Officers.

CREMATION OR BURIAL?

Amongst the many factors which affect the condition of the public health, the mode of sepulture is one. Over-crowded burying grounds in former times were often a prolific source of disease, but since the Acts of Parliament relating to intramural interments have been passed, these nuisances have become greatly mitigated, and in most cases altogether abated. Within the last year the question of the advisability of burning the bodies of the dead, instead of committing them to the bosom of the earth, has been very seriously discussed. Sir Henry Thompson in two articles,^a entitled, "Our Treatment of the Dead," in the numbers of the *Contemporary Review* for January and March, 1874, has strongly advocated the cremation of the dead. These papers have attracted great attention, and we have no doubt but that the views put forward by this distinguished author will be carried into effect, at least to some extent, in these countries.

The subject of cremation has also been discussed, and with even

^a Since reproduced in pamphlet form, and published, under the title of "Cremation," by Henry S. King & Co., Cornhill, London. 1874.

a greater amount of interest, in several Continental states. It was debated at a Congress of medical men assembled at Florence in 1869, and who unanimously voted that in the interests of the public health it would be desirable to burn the bodies of the dead instead of burying them. This vote was confirmed by that of the Medical Congress assembled at Rome in 1871. The Congress at Florence requested Dr. Giovanni Polli, of Milan, Dr. Paolo Gorini, of Lodi, and Professor Brunetti, of Padua, to make researches relative to the best method of consuming dead bodies by the agency of fire; and in order to encourage researches with a similar object, the Royal Institute of Science and Arts, of Lombardy, announced that the subject of its quinquennial prize (to be awarded in 1877) would be—on the substitution for inhumation of a method of incremation, which would mitigate the evils arising out of the former method of disposing of the dead.

Sir Henry Thompson informs us that he saw at the Great International Exhibition at Vienna, in 1873, an apparatus devised by Professor Brunetti for the cremation of dead bodies. In this apparatus (which is a furnace so constructed that the products of the combustion of the body are passed through a second furnace, and thereby thoroughly mineralised) a body was reduced to ashes in $3\frac{1}{2}$ hours. The fuel used consisted of 150 lbs. of wood, which cost 1 florin 20 kreutzers—about 2s. 4d. English money. The ashes of the body weighed about $3\frac{3}{4}$ lbs., and they were deposited in a glass case about 12 inches long, by 8 inches wide and 8 inches deep. Sir Henry Thompson has, however, consumed dead bodies himself, but of the lower animals only. He tells us:—

"A powerful reverberating furnace will reduce a body of more than average size and weight, leaving only a few white and fragile portions of earthy material, in less than one hour. I have myself personally superintended the burning of two entire bodies—one small and emaciated, of 47 lbs. weight, and one of 140 lbs. weight, not emaciated—and possess the products—in the former case weighing $1\frac{1}{4}$ lbs., in the latter weighing about 4 lbs. The former was completed in twenty-five minutes, the latter in fifty. No trace of odour was perceived—indeed, such a thing is impossible—and not the slightest difficulty presented itself. The remains already described were not withdrawn till the process was complete, and nothing can be more pure, tested by sight or smell, than they are, and nothing less suggestive of decay or decomposition. It is a refined sublimate, and not a portion of refuse, which I have before me. The experiments took place in the presence of several persons.

Among the witnesses of the second experiment was Dr. George Buchanan, the well-known medical officer of the Local Government Board, who can testify to the completeness of the process.

"I challenge my opponent to produce so fair a result from all the costly and carefully-managed cemeteries in the kingdom, and I offer him twenty years in which to elaborate the process.

"In the proceedings above described, the gases which leave the furnace-chimney during the first three or four minutes of combustion are noxious; after that time they cease to be so; and no smoke would be seen. But those noxious gases are not to be permitted to escape by any chimney, and will pass through a flue into a second furnace, where they are entirely consumed; and the chimney of the latter is smokeless—no organic products whatever can issue by it. A complete combustion is thus attained. Not even a tall chimney is necessary, which might be pointed at as that which marked the site where Cremation is performed. A small jet of steam quickening the draught of a low chimney is all that is requisite. If the process is required on a large scale, the second furnace could be utilized for Cremation also, and its products passed through another, and so on without limit.

"Subsequent experiments, however, by another method have resulted in a still greater success. By means of one of the furnaces invented by Dr. Wm. Siemens I have obtained even a more rapid and more complete combustion than before. The body employed was a severe test of its powers, for it weighed no less than 227 lbs., and was not emaciated. It was placed in a cylindrical vessel about seven feet long by five or six in diameter, the interior of which was already heated to about 2,000 Fahr. The inner surface of the cylinder is smooth, almost polished, and no solid matter but that of the body is introduced into it. The product, therefore, can be nothing more than the ashes of the body. No foreign dust can be introduced, no coal or other solid combustible being near it—nothing but a heated hydrocarbon in a gaseous form and heated air. Nothing is visible in the cylinder before using it but a pure, almost white, interior, the lining having acquired a temperature of white heat. In this case the gases given off from the body so abundantly at first pass through a highly-heated chamber among thousands of interstices made by intersecting fire-bricks, laid throughout the entire chamber, lattice-fashion, in order to minutely divide and delay the current and expose it to an immense area of heated surface. By this means they were rapidly oxidised, and not a particle of smoke issued by the chimney; no second furnace, therefore, is necessary by this method to consume any noxious matters, since none escape. The process was completed in fifty-five minutes, and the ashes, which weighed about five pounds, were removed with ease. The foregoing is a very meagre sketch of Dr. Siemens' furnace, the principle of which is well known to engineers

and to scientific men generally, and need not be described in detail here."

The objections made to the proposition to burn the dead, instead of burying them, are briefly as follows:—1st. That if cremation were universally adopted a serious injury would result to anthropological and geological science—the organic remains of man and the lower animals, found with the soils and rocks of our earth, having already been of incalculable service in paleontological and cognate sciences. 2nd. That incremation of the dead is opposed to the sentiments and religious views of the great majority of the Christian world. 3rd. That the process would be more costly than that of inhumation. 4th. That it would prevent the detection in the bodies of dead persons of poisons, except during the short time previous to their incremation.

With respect to the first and last of these objections, it must be admitted that they are well founded; but the last is the only one which is really of much importance. The knowledge that his intended victim would, after death, speedily be reduced to cinders, might often decide a person meditating murder by poison to carry out his criminal design. With respect to economy, we think that there would be little or no difference between the expense of inhumation and cremation in populous localities, whilst in thinly-peopled districts the latter mode of treating the dead would be found the cheaper. Sir Henry Thompson states that there are 80,000 annual interments in London and its immediate neighbourhood, and that the average cost of each is £10. He says:—

"For the funeral rites of the 80,000 in London last year, let a mean cost of ten pounds per head be accepted as an estimate, which certainly does not err on the side of excess. Eight hundred thousand pounds must therefore be reckoned as absolute loss, to the costs already incurred in the maintenance of the system. Thus we pay every way and doubly for our folly."

We cannot understand why there should be no cost for "funeral carriages, horses, trappings, and accoutrements," in the case of a funeral procession proceeding to a *burning-place* as well as to a burying-ground. In disposing of a body by cremation, the cost of that process should be set-off only against that of a grave or vault. In cemeteries near cities graves seldom cost less than £1 5s., a sum certainly larger than would be charged for consuming a body. With respect to monuments, the rich, even if they burned the dead

bodies of their relatives, would expend as much money in monumental slabs, urns to contain their ashes, or "memorial windows" in places of worship, as they now do in the erection of tombstones. In rural districts, where graves are cheap, and sometimes cost only a few shillings, cremation could hardly compete with inhumation. With respect to the matter of sentiment and religion, there is, or ought to be, nothing in cremation opposed to them. Greeks and Romans occasionally burned their dead, and preserved their ashes in urns. Cornelia placed the ashes of Pompey, her husband, in a vase, and deposited the latter in a tomb at their villa near Alba.

A German Cremation Society has been formed at New York. They propose to construct a large building with iron walls, sixty feet long and forty-four feet wide, and lighted from above. On an altar situated in the centre of the building, and in front of this, the body, contained in an iron coffin, will be placed until after the performance of the religious rites. Then the body is to be lowered into a space beneath, and removed by machinery towards a furnace, and subjected to a hot blast of a temperature of 1,000° Fahr., which will reduce the body to ashes in from sixty to ninety minutes, at an average expenditure of from 250 to 450 lbs. of coal, and a cost of eight dollars. During the recent scientific Congress at Breslau a corpse was cremated in the presence of several *savants*; and the body of the wife of a well-known British senator was, on the 10th October, 1874, reduced to ashes by Mr. Siemens, in one of his celebrated furnaces in Dresden. Six minutes after the coffin had been placed in the furnace it burst; five minutes later the flesh began to melt away; ten minutes more and the skeleton was uncovered, and in ten minutes later began to crumble. In one hour and a quarter, 6 lbs. of ashes alone remained of body and coffin.

It is in the hygienic aspects of the subject of cremation that we are more immediately interested. We have no doubt whatever but that the destruction of a human body by heat could be effected without the evolution of noxious gases or vapours into the atmosphere. We believe, too, that the process could be very economically carried out. At the same time we are by no means disposed to agree with those who consider that even such well-kept cemeteries as Père-le-Chaise, Paris, Kensal Green, London, and Glasnevin, Dublin, are public nuisances. We have had occasion to examine the air of, and drainage from, a large cemetery at Golden Bridge, close to Dublin, and we found both remarkably

pure. The air contained no sulphuretted hydrogen, and but the merest trace of organic matter, whilst the carbonic acid amounted to the low proportion of 0·042 per cent. In the drainage there was only a little nitrogen, but it existed almost completely in the perfectly oxidised condition of nitric acid—the albuminoid and ammoniacal nitrogen being mere faint traces. A human body deposited in a grave six feet deep moulders away therein harmlessly. The gases evolved from the softer portions of the body are absorbed by the clay. Some of them, such as phosphuretted hydrogen and sulphuretted hydrogen, are oxidised into innocuous compounds—phosphoric and sulphurous acids, and water. The ammonia formed during decomposition is dissolved in the water contained in the soil, and is partly converted into nitrous and nitric acids, partly absorbed by the vegetables growing in the cemeteries. If a layer of lime were placed under, and another over, every coffin deposited in a grave, the gaseous ammonia evolved from the body would be immediately converted into nitric acid, which would at once unite with the lime and form harmless salts.

Ill-kept graveyards are a serious nuisance. The exhalations from the ground are—carbonic acid, ammonia; carbonated, sulphuretted, and phosphuretted hydrogen; and organic and semi-organic matters. We have inspected graveyards in which the exhalations from the soil were offensively evident to the senses. As an example of an ill-kept, over-crowded burial-place, we may cite the Abbey graveyard, situated in the centre of Dundalk, and which is almost daily used by the lower classes. Many of the coffins are within one foot of the surface, and the lids of a few are visible.

Cemeteries should undoubtedly be placed outside of towns, and also under the management, or at least constant supervision, of the local sanitary authorities. If they are properly managed, there is no reason why they should prove injurious to public health. Let us assume the case of a cemetery of three acres, the graves varying from five to eight feet in depth, and the interments averaging 100 per annum. As the greater number of persons interred are children, and as adults are usually greatly emaciated before death, the average weight of corpses is probably not more than 50 lbs. If we assume that the absorbent soil of the cemetery is only eight feet deep, then three acres of it weighs 2,650,000 lbs., which annually receive 5,000 lbs. weight of human remains, or 0·1825 per cent. of the weight of the soil. It must, however, be borne in mind that more

than four-fifths of this animal matter consists of water and earthy and saline substances, so that, in fact, only about 1,000 lbs. of dry organic matter, capable of being converted into gases, are annually placed in the soil. Small as this quantity of animal matter is, if it were allowed to accumulate in the soil, it would, after a few years, acquire dangerous proportions; but it becomes re-organised into vegetable forms, and in an altered and harmless state carried off in the drainage. If the graves were covered with grass, the crops would amount to about twelve tons yearly; but as the graves would be frequently opened, we shall assume that only three tons of grass are obtained. The proportion of decomposable matter in grass varies from 20 to 35 per cent.; let us say that in the cemetery it contains 25 per cent., from which it follows that there are annually removed from the cemetery 1,680 lbs. weight of (dry) vegetable organic matter; whilst it receives in the same period 1,000 lbs. of (dry) animal organic matter. The decay of the coffins is not productive of any injurious effect upon the atmosphere. Thus it is evident that the vegetable matter removed in the form of grass from the cemetery carries off from it a greater amount of organic matter than the soil receives in the form of animal matter.

A heavily manured field would receive at a single application a much larger quantity of organic matter than would be deposited in such a cemetery as we have described in a year. Forty tons of stable dung in a state of decomposition are often spread over an acre of arable land: such an application would contain five or six times as much (dry) organic matter as a well-kept cemetery would yearly receive.

Any burial ground which is over-crowded may be closed by an order of the Local Government Board, before whom evidence as to the state of the place must be given. 19 & 20 Vict., c. 98, and 23 & 24 Vict., c. 76, relate wholly to the burial of the dead in Ireland. Sections 5 and 6 of Vict. 11 & 12, c. 65, are incorporated with the first of the former Acts, as are also sections 65 to 74; 10 Vict., c. 16; and sec. 26, 32 & 33 Vict., c. 42 (Irish Church Disestablishment Act).

VITAL STATISTICS OF THE JEWS.

In a recent number of that well-conducted American journal, the *Medical Record*, Dr. John Stockton Hough gives an account of the biostatic peculiarities of the Jews, collected from the writings of numerous continental authorities. We extract some of the more

interesting of these vital statistics of that remarkable and persistent people, which now numbers, in Europe alone, seven millions of souls.

The statistical returns relating to the Jews of Prussia, and which have been collected with great care, during the period from 1825 to 1861 (period 1849 to 1852 excepted) show that their increase of numbers always surpassed that of the general population—and, above all, by the excess of births over deaths; if there are fewer adults there are more aged ones. The proportion of sexes is 103·37 women to 100 men, in place of 100·72 women to 100 men in the general population. Their *occupations* are as follows:—

	General Population	Jews
Agriculture, Gardening, and Agricultural Industry,	42·53	2·18 per cent.
Industry,	39·41	18·37 "
Commerce,	5·17	57·33 "
Domesticity,	3·25	6·73 "

Marriages among Jews are more rare than among other religionists, as may be seen from the following statements (from Lévy's pamphlet on the Vital Statistics of the Jews, p. 17):—

INHABITANTS TO ONE MARRIAGE.

Years	Evangelists	Catholics	Israelites
1831	129·21	136·62	155·12
1834	102·76	103·99	129·94
1837	110·02	109·38	142·20
1840	112·08	113·61	127·58
1843	107·97	113·19	123·21
1846	112·36	122·93	134·54
1849	107·77	111·40	174·92

In Saxony there was one marriage among 113 Israelites, and 1 among 103 Christians. In Tuscany for the year 1861, 1 to 103 Christians, and 1 to 141 Israelites. Owing to municipal interferences, this lessened frequency of marriage among Jews is due.

According to Lévy, Israelites marry less and have fewer children, fewer still-births, fewer deaths among the children born alive. From the documents in Prussia, there were 29·97 Jews for 1 birth, and 25·21 Christians for 1 birth.

At Furth, an average for 25 years gives one marriage for every 128 Christians, and for every 149 Jews. Of 100 persons married, 29 Christian men were under 30 years of age; while 37 Jewish men were under 30 years of age; 54 Christian women were under 30 years of age; 60 Jewish women were under 30 years of age.

The marked and unvarying peculiarity of this race is the

larger proportion of boys among the births than among Christians in the same places.

These differences between Jew and Christian are probably chiefly due to the observance of certain Mosaic laws (Levit., c. xv., 19, 28).

PROPORTION OF SEXES AMONG BIRTHS OF ISRAELITES.

Country	Period	Whole Number	Boys to 100 Girls
Israelites in Prussia,		5,318 boys and 4,682 girls	113·00
" "	1827	2,956 " 2,624 "	111·00
" "	1820-5	12,454 " 11,029 "	112·92
Christians, "	1820-5	842,894 " 794,580 "	106·08
Israelites in Berlin, 16 years in succession, anterior to 1820,	{	528 " 365 "	144·65
Israelites in Breslau, 1782 to 1800,	-	- -	114·00
Leghorn,	-	- -	120·00
Christians	-	- -	104·00
Christians, legitimate, in Prussia,	-	- -	106·07
illegitimate, "	-	- -	103·60
Jews, legitimate,	"	- -	109·36
illegitimate,	"	- -	101·19

Jews have an excess of males at birth amounting to nearly 18 per cent., while the general population have only 6½ per cent., yet, notwithstanding this, if all ages be taken in the population, Jews have 3·25 per cent. fewer males than females, while the general population have only 8 per cent. fewer males than females.

This difference is certainly greater than could be accounted for by a difference in emigrants in favour of males, and is probably due to greater proportionate mortality among Jewish male infants, or greater longevity of their females; probably the latter.

Dr. Glärtter, in his paper on "The Influence of Race on the Duration of Life," gives the following table, showing the relative frequency of disease among different races in the same locality:—

	Number III	Number to 1,000 Inhabitants
Magyars,	6,034	534
Germans,	3,806	223
Slavonians,	1,522	182
Servians,	252	28
Jews,	1,540	32

Jews suffer little from intermittent fevers, convulsions, and tabes mesenterica of children, and from phlegmasiae of the respiratory organs. On the other hand, they suffer frequently from apyretic cutaneous affections, gastro-intestinal catarrhs, and hernias.

Tschudi says that the plague of 1346 did not affect the Jews of any country. And, according to Fracastor, the Jews escaped completely the epidemic typhus of 1505. Dr. Stallard, in his work on

"London Pauperism," says Jewish children have no hereditary syphilis, and scarcely any scrofula. Their greater tenacity of life is, therefore, not only due to better maternal care and nursing, but to the inheritance of a better physical constitution than the Christian child.

M. Lévy estimates that the mean average duration of life among Jews exceeds that among Christians by about 5 years. In 1849, Prussia computed 1 death for:—

Evangelists 84·35 inhab.	Catholics 80·18 inhab.	Jews 40·69 inhab.
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According to Stallard, the mortality among Jewish children in London from 1 to 5 years of age is only 10 per cent., while among the Christians it is 14 per cent. The average duration of life of the Christian in London is 37 years; of the Jew 49 years.

In Prussia the Jewish population (1822–1840) increased 34½ per cent.; Christians only 28 per cent. There was 1 birth to every 28 Jews, 1 to every 25 Christians; 1 marriage among every 139 Jews, 1 among 112 Christians; 1 death among 40 Jews, 1 in 34 Christians.

Increase in population among 100,000 individuals:—

	Christians	Jews
Marriages,	893	719
Births,	4,001	3,546
Deaths (still-births included),	2,961	2,161
Excess of births over deaths,	1,040	1,385

Legoyt says that the Jews have fewer still-births than Christians. Glätter gives 1 still birth in 19 among Christians, and 1 in 34 among Jews:—

	Christians	Jews
Still-born in Prussia in 100,000 inhabitants,	143	89
" " among 100,000 children,	3,569	2,524

According to Lévy, they lose fewer children than other religionists; from 1859 to 1861, we find in Prussia for 100 births the proportions of mortality which follow:—

Evangel.	Cath.	Philpos.	Ger. Cath.	Mennon's	Jew.
66·37	65·94	56·04	56·77	86·66	48·11

Some of the causes of Jewish longevity are chiefly as follows:— They are obliged to keep two Sundays in a week, besides Jewish, Christian, and political holidays, or two out of every five days being lost to business, gives them by necessity about twice as many days of leisure as Christians. They do not engage in mining,

mechanics, and other hazardous occupations. The biblical and traditional prohibitions of certain aliments is favourable to longevity. The fifth and last of the summary of causes to which M. Legoyt attributes the greater mean average duration of life of this people, is that "the *sentiment de la famille*, more developed in them than in Christians, assures to their children, to their aged and infirm parents, a solicitude more active; to the new-born the mother's nursing; to the poor an assistance more efficacious. Their charity is unequalled; their morality is demonstrated by judiciary statistics; the firmness and serenity of spirit are the most marked traits of their character, and proceed from a profound faith, from an unalterable confidence in Providence." They rarely use alcoholic liquors, and almost never to excess; this is universally conceded. They seldom marry out of their own race, and have little hereditary disease.

Parton, who quotes from the organ of the London Society for the Conversion of Jews, which spends \$250,000 annually "in converting (?) a few poverty-stricken wretches, and sending abroad on highly interesting tours a few plausible renegades," confesses:—"As to their moral qualities, the evidence seems to show that the lower class of Jews are decidedly superior to the same class among ourselves. They are far less given to drinking; their religious customs enforce a certain amount of cleanliness, both personal and in their dwellings; and two families are never found inhabiting the same apartment."

Among the conditions unfavourable to longevity, we may mention their almost universal habit of residence in large cities; and the rarity of their engagement in agricultural pursuits.

Dr. Glüttner concludes from all this that, under the relation of duration of life, the Jews are in a condition much more advantageous than Christians. In effect, the more the mean duration of life augments in a people, as is the case with the Jews, the more it diminishes the number of widows and orphans; the more numerous the active and productive class, the more it diminishes the class of pure consumers.

It is evident from all we have here shown, that the numerical increase of a race depends more on the conservation of those already born, than in a great fecundity with less conservation of the issue.

The Jews have always taken every precaution to preserve the life of every individual born.

The Mosaic laws prescribe most of these measures—even to the

construction of their houses, requiring balustrades about the roofs to keep children from falling from them. Ancient Rome, with all the jealous care she exercised in the conservation of her citizens, did not approach the excellence of the Mosaic dispensation of these matters.

Jewish subjects would, therefore, appear to be much more advantageous risks for life companies than other races.

INSANITARY CONDITION OF CANAL BOATS.

Many thousands of the inhabitants of the United Kingdom use the large boats that ply upon the canals and rivers as dwellings. In Ireland there are more than 4,000 "boatmen," of whom a large proportion is employed on the inland waters. The sanitary conditions under which boatmen are placed are, therefore, a subject of considerable importance; and we propose to show that, so far as our observation extends, they are far from satisfactory.

We have inspected a large number of the boats which ply on the two canals that enter Dublin, and anything more insanitary than the condition of the cabins of the majority of them it would be difficult to conceive. These "dwellings" are rarely five feet, and sometimes not more than three feet, in height; only a small proportion of them is provided with windows, and their sole ventilators are the openings or hatches through which the men descend into their gloomy abodes. The crews of the boats sleep, cook, and sometimes wash in the cabins; their provisions are kept there, and very frequently the boat's dog or dogs are permitted to sleep in them. What becomes of the excreta and slops produced on board? Consigned not unfrequently, we apprehend, to the canal; and canals often afford the only water supplies to towns and villages. The following description of boats which we have recently examined in the Dublin canals, by no means refer to exceptional cases:—

No. 1. Cabin, four feet three inches in height, containing 400 cubic feet; lighted by two small windows, about eight inches square each; a close stove, a bench bedstead, lockers, cooking utensils, &c. Two men sleep in the bed, and a boy sleeps in a "shake-down" on a bench. Only the latter had slept in the cabin the night previous to our examination (at 8, a.m.) the following morning. The cabin felt somewhat, but not very, close. The amount of carbonic acid was determined, and found to be .098 per cent. This amount, though above the normal standard of .04, is

not very high ; but then it would have been greater had not the two men who usually slept in the cabin been absent the night previous. Still, this cabin was in every respect superior to most of the others which we examined.

No. 2. Cabin, three feet nine inches in height, seven feet long, seven feet wide = $183\frac{3}{4}$ cubic feet; three occupants (men), having respectively $61\frac{1}{2}$ cubic feet of space. The three men slept in one bed. The close stove had a fire blazing brightly in it (the morning was warm) at the time of our examination. The little cabin was crowded with utensils and odds and ends, by which the cubic space was still further diminished. There were no windows, and the only opening in the cabin was the hatch, two feet by two feet. The men had left the cabin an hour before our arrival, and the air in it was, no doubt, in the meantime somewhat purified; but we found the carbonic acid to amount to .34 per cent.

No. 3. Cabin, $3\frac{1}{2}$ feet in height; 350 cubic feet. No windows; hatch four feet square—no other ventilator. Stove, with fuel burning in it. Two men and a boy, all occupying one bed. The usual lockers, &c. The atmosphere felt very close, and contained of carbonic acid .365 per cent.

No. 4. Cabin, four feet ten inches in height; 360 cubic feet of space. No windows; hatch, three square feet, and no other opening. A close, iron stove, with fuel burning in it. Three men sleep in one bed, one man in another, and two dogs on the floor. The place has a predominant odour of turf smoke, modified by various others—those of tobacco, herrings, &c. Very little light; none from the sun when the hatch is closed^{*} during rain. The place swarms with bugs and fleas. The men had not long risen at the date of our visit. The air contained of carbonic acid .95 per cent. The air of the cabin in this boat felt very oppressive, and after remaining in it for half an hour we experienced the head-ache and other symptoms so often observed where the atmosphere is loaded with organic matter, and which Dr. Angus Smith has so graphically described in his Report on the Air of Mines, and in his work, "Air and Rain."

That the atmosphere of such a place as that last described must be highly injurious to health, needs no argument to prove in these days of sanitary enlightenment. One of the men in this boat, aged (he stated) forty years, appeared to be at least fifty. He was

* During rain and in winter, when the hatch is closed, there is no opening whatever by which to admit air; it must come through the chinks.

hollow-cheeked, thin, weak-eyed, and his muscles were very soft. He said that he had been only two years living wholly as a canal boatman, during which time he had lost strength and flesh rapidly, and he was so apprehensive of losing his life that he intended to give up his present pursuit. On inquiry, we found that large numbers of boatmen complain of loss of health; and, as their occupation is healthy and not too laborious, their decay of vigour and health must be due to the scandalously bad sleeping accommodation provided for them.

The amount of carbonic acid in a pure atmosphere is from .011^{*} to .04. In very badly ventilated places it varies from .1 to .5 per cent., but in the cabin of the last described it amounted to nearly 1 per cent. The determinations of this gas were made according to Angus Smith's convenient method.

According to the provisions of the 32nd section of the Sanitary Act, 1866, a ship or boat is to be regarded as a house or dwelling. Therefore there is no reason why the sanitary authorities, urban and rural, should not look after the health of dwellers in those floating houses. The 19th section of the same Act defines as a nuisance any house or part of a house (which means a ship or boat) so over-crowded as to be injurious to health. The minimum cubic space sufficient for each person is not set down in the Act, that being left to the discretion of the Medical Officer of Health. In the metropolitan lodging-houses, 30 square and 240 cubic feet are the minima for each person; in Dublin the tenement houses must have 300 cubic feet for each person; and the same space is the minimum allowed by the Poor-law Regulations. In the General Police and Improvement (Scotland) Act, it is laid down that each person over eight years old shall have 300 cubic feet, and each child under eight years old 150 cubic feet, to sleep or live in. The allowance in the case of children is too small. We believe the London magistrates often order 400 cubic feet to be provided for each person in tenement houses. In the cabins of the Irish canal boats the space per head varies from 40 to 120 cubic feet.

These floating dwellings have no earth closets or other contrivance for receiving excreta. We suspect that the effete matters produced on board are for the most part dropped into the water. Ballot found that cholera in Holland travelled along the canals. We can now understand why.

* Frankland found this low proportion on the summits of the *Grands Mulets*, in the Alps.

The proper remedies for the sanitary defects of canal boats are as follows:—Increased size of cabin. This could be effected by projecting its roof two or three feet above the level of the deck, and this change would allow of proper windows being placed in the cabins. For each person sleeping in the cabin the minimum space should be 220 cubic feet; the ventilating openings to be four square feet per head. The cabins should be placed in the stern and not in the bows, the latter being sometimes the situations selected. M'Kinnell's ventilator is the most useful one for cabins, as it introduces pure air through the roof, and permits the escape of vitiated air through the same place.

It does not promote decency or morality to permit three or four men and boys to sleep in one bed; therefore for each occupant of a boat-cabin a berth or hammock should be provided.

We have brought under the notice of the Public Health Committee of the Corporation of Dublin the disgraceful condition of the canal boats, and they are about to deal effectively with this serious nuisance.

HOSPITALISM AND CONSTRUCTION OF HOSPITALS.

It is not improbable that the hospitals of the last century increased the death-rate of the population instead of diminishing it. They were small, over-crowded, ill-kept and badly ventilated; the patients were not classified according to their maladies—phthisical and fever patients were placed side by side. The dietaries were insufficient, and the nurses too often brutal and ignorant. Smollett (himself a physician) has given us, in Chapter XXV. of "Roderick Random," the following description—we have no doubt a perfectly truthful one—of a naval hospital of the last century:—"Here I saw about fifty miserable distempered wretches, suspended in rows, so huddled one upon another that no more than fourteen inches space was allowed for each with his bed and bedding; and deprived of the light of the day as well as of fresh air; breathing nothing but a noisome atmosphere of the morbid steams exhaling from their own excrements and diseased bodies, devoured with vermin hatched in the filth that surrounded them, and destitute of every convenience necessary for people in that helpless condition."

No doubt, the hospitals for soldiers and for the civil population were not in a much better condition than the noisome den so graphically described by Smollett. In the *Hôtel Dieu*, a famous Paris hospital, the wards were so over-crowded that there was

hardly one bed for every six persons. The patient enjoyed by turns the luxury of a bed, and when not its occupant, had to rest—if rest it could be called—on benches. Can we wonder that one out of every four died? The condition of London and Dublin hospitals was not much better. In the surgical infirmaries the mortality was frightfully high, the majority of persons on whom the major operations were performed died, not from the mere operation itself, but from blood-poisoning caused by the foul air of the place.

In quite recent times the condition of hospitals was scandalously defective. In 1857 it was found by actual measurements that the average space for each patient, in forty-six military hospitals, was only 655 cubic feet.

The microscopical examinations of the solid matters floating in the atmosphere of hospitals, and the dust on its walls and recesses, have not afforded pleasant results. Drs. Dundas Thompson and Rainey found in the air of a ward in St. Thomas' Hospital, London, occupied by cholera patients, sporules, vibrios, in an active state, confervoid fungi, hairs, wool, cotton, &c.*

Reveil and Chalvet^b found, independently, large quantities of epithelial cells, and organic corpuscles, in the air of a surgical ward of the Hospital of St. Louis, Paris.

Dr. Watson found in the air of a phthisical ward, bodies resembling the degenerate cells of tubercle.

M. Lemaine^c examined the air of several hospitals, and found in the moisture condensed from it, and the air itself, numerous bacteria, monads, and vibrios, fungoid bodies, and oval and round diaphanous bodies.^d Such bodies may not be the cause of any disease, but their presence in the atmosphere of a hospital ward is an evidence of imperfect ventilation; besides, there is a possibility that some of these low forms of life may be connected, in some way, with the spread of contagious diseases.

Dr. Brockley (*Economical and Medical Observations from the year 1758 to 1763 inclusive: London, 1764*) tells us that in small hospitals which he had extemporised, sick soldiers generally

* Report of the Committee for Scientific Enquiries in relation to the Cholera Epidemic of 1854. P. 121.

^b Annales D'Hygiène Publique, July, 1862; and Revue Médicale, for June 30th, 1866.

^c Parkes' Manual of Hygiene. 4th edition.

^d Recherches Cliniques et Experimentales sur les Maladies Infectueuses. Par MM. Coze et Filly. Paris, 1872. Also Comptes Rendus for October, 1868.

recovered, whilst those placed in the ordinary hospitals suffered from a frightful mortality. The extemporised hospitals were mere wooden sheds, cheaply and expeditiously constructed, and much exposed to cold and moisture.

If density of population be a factor in producing a high death-rate, surely the crowding of the sick must be the very worst form of human "density." The statistics of the mortality of hospitals, taken in connexion with their construction, formerly and lately, admit of but one inference—namely, that the excessive aggregation of the sick is a serious cause of mortality among them. It might be urged that if this be the case it would be better to substitute for the hospital some other and more efficacious mode of alleviating human suffering in disease; but no such mode, likely to be efficacious, has been suggested. Hospitals are adjuncts of our civilisation; but we should adopt, in their construction, every means likely to promote their object—the cure of disease. There is not wanting plenty of advice on this subject; whilst a variety of opinions on the details of "sanitary architecture" prevails, every one is agreed that in hospitals abundance of pure air and ample cubic space are prime requisites.

The term *hospitalism* has been applied to the aggregate evils incidental (at present) to the treatment of the sick in hospitals. The late Sir James Simpson, of Edinburgh, Dr. Evory Kennedy, of Dublin, and Miss Nightingale, have each discussed the subject. Sir James Simpson collected statistics of amputations of limbs performed in town hospitals, in small ones in country places, and in private practice. He found that the mortality after these operations in the city large hospitals was more than double that attendant on the operations performed in small hospitals in the country and in houses. In hospitals of from 300 to 600 beds the mortality was 40 per cent.; in those having from 100 to 300 beds, 25 per cent.; in those with from 25 to 100 beds, 13·5 per cent.; in college hospitals, of less than 8 beds, 2 deaths followed 75 operations; and in private practice in the country, 1 in 9 operated on die. In 9 London hospitals the deaths, after amputation of the thigh, were in the ratio of 46 per cent.—an excessive mortality. In American hospitals—which are smaller than those in London—the mortality, after amputation of the thigh, is in the ratio of 34·51 per cent.*

* Amputations at the Massachusetts General Hospital. By Dr. James Chadwick. 1871.

Dr. Evory Kennedy, of Dublin, in an elaborate paper^a read before the Obstetrical Society in 1869, showed that the deaths in the Rotundo Lying-in Hospital averaged, since its formation, 1 per 72 patients. In some years the deaths were very numerous, and in one they were in the ratio of 14 per 100 patients. The deaths in England and Wales from childbirth and its *sequelæ*, during a long series of years, averaged 1 in 223, in Scotland 1 in 225, and London 1 in 232 cases. Dr. Kennedy believed that the high mortality in the Rotundo Hospital was chiefly due to puerperal fever, the contagious matter of which was never absent from the institution owing to the large number of patients treated in it, who were continuously adding to the stock of puerperal poison. He suggests that parturient women should be treated in cottage hospitals, each containing not more than two beds. By this plan he conceives that the mortality from metria would be greatly diminished. The following are some of Dr. Kennedy's conclusions:—

"2. That this poison may be generated by any parturient female; and where the circumstances are favourable to its imbibition it may be absorbed into the system of the generator or that of any other parturient female exposed to its influence.

"3. That the generation and absorption of this contagion is in a direct proportion to the number of parturient females cohabiting at their parturient period, or who breathe the same atmosphere when lying-in.

"4. That in lying-in hospitals, where large numbers of patients are delivered under the same roof, this disease finds its habitat, appearing and re-appearing at uncertain intervals.

"5. That its appearance, although apparently capricious, is not infrequently traceable to the occurrence of other zymotic diseases, to a general unhealthy state of the hospital, the labours for some time being succeeded by bad recoveries before the true zymotic metria exhibits itself."

Dr. Kennedy's paper has attracted great and deserved attention, not only in the United Kingdom, but on the Continent and in America. Although it may not have the effect of abolishing lying-in hospitals, it cannot fail in doing good, by pointing out the evils which arise from crowding parturient women together. It is undoubtedly the most valuable memoir yet published on the subject of Hospitalism.

The opinion of the majority of obstetric practitioners in Dublin does not coincide with that of Dr. Kennedy, respecting the malign

^a Since published by Longmans, Green, and Co., Paternoster-row, London, 1869.

influence of hospitals in producing metria. Drs. Kidd and Ringland state, that in the Coombe Maternity the deaths from puerperal fever during a period of 14 years, were in the ratio of 1 in 119·509 cases. They, moreover, admitted that metria was contagious, and that where it did break out it spread rapidly amongst the patients. The Coombe Lying-in Hospital has recently been re-built in great part, and now consists of two buildings, perfectly isolated from each other. Should metria appear in one of these buildings it can be closed at once, another being available for the patients. The *Irish Times* of 21st October, 1874, gives an account of a midwife who attended a woman suffering from metria, and of whose six subsequent patients every one contracted the disease.

Dr. Churchill tells us that in some small lying-in hospitals the deaths are numerous—Edinburgh Hospital (3,824 cases), 1 in 61 cases; the British Lying-in Hospital (2,438 cases), 1 in 34; Liverpool Hospital (1,092 cases), 1 in 29. In some of the large hospitals the mortality is very great—Maison d'Accouchements, Paris, 1 in 13½ cases; in St. Petersburg Hospital 1 per 26½ cases. In the well-known Royal Maternity of London (in 18,751 cases), the deaths amount to 1 in 329 cases.

The Statistics of the Rotundo Hospital show at some times a high death-rate, at other periods a low one. The opinion of those well qualified to deduce inferences from these statistics^{*} is, that the low mortality always prevailed during the masterships of men who paid especial attention to the sanitary condition of the institutions and of its occupants. If this be correct, hospitals might be so constructed and managed as to almost equal in salubrity a well-kept private dwelling. Amongst the numerous defenders of the large hospital system when properly managed, we may specially name Mr. Simon, Medical Officer of the English Privy Council, and whose eminence as a sound sanitarian has never been questioned. Should even a large section of the medical profession pronounce against the continued existence of large hospitals, it is not probable, hardly possible, that these institutions will be replaced by cottage infirmaries for many a generation to come. We must, therefore, address ourselves to the improvement of the sanitary conditions of existing hospitals and to the construction of those hereafter to be erected on the most approved principles, which the combined wisdom of the sanitarian and architect can suggest. Let us attempt the consideration of some of these principles. Density of population

* Dublin Quarterly Journal of Medical Science, August, 1869.

being in itself a (complex) cause of disease, patients should be separated from each other by as wide a space as possible. The interval between the beds should not be less than 10 feet, and the minimum space per patient should be 1,500 cubical feet. When greater square and cubical space can be afforded so much the better. According to Dr. Acland, the minimum square space per bed is 72 feet. In typhus and small-pox it is difficult to keep the air free from offensive odour even when the cubical space is extremely large and the ventilating apertures numerous. Some authorities state that in typhus, small-pox, gangrene, erysipelas, &c., from 3,000 to 6,000 cubical feet are necessary, and that even complete exposure to the air in suitable weather is even more desirable. From 3,000 to 6,000 cubical feet are not unfrequently introduced per hour per head into the fever wards of London and Continental hospitals without the bad odour present in them being wholly removed.

It is by no means easy to introduce large volumes of air into a ward without occasioning a disagreeable draught; but it is important to bear in mind that this task is easier in proportion as the cubical space of the room is increased. In very large hospitals the pure air, sufficiently warmed when necessary, may be propelled by machinery into the ward. This method is expensive and is not likely to be often adopted; neither is the converse plan of extracting (pumping-out) the air by means of machinery, whereby fresh air is caused to flow into the room. Extraction and propulsion of air are admirable plans for ventilating theatres, concert halls, &c., where large numbers of persons are temporarily congregated and are provided with very limited square space. In several Continental and American hospitals, Van Hecke's method of ventilation is in use in some wards. It consists of a fan worked by a steam engine, which drives air into small chambers in the basement storey, where it is heated by stoves, and from which it ascends through tubes into the rooms to be heated and ventilated. In the Utica Asylum, New York, the fan is worked by a two-horse-power engine, and it blows air into a chamber which is heated by 80,000 feet of steam-piping; thus warmed, it ascends to the wards, through their floors, and finally passes out of them through openings in the ceiling. This plan of heating and warming is said to be most effective and not too costly; it is, however, only a modification of Silvester's plan of ventilating and warming rooms suggested many years ago. There should, besides the doors, windows, and open fire-place, be two openings, each of 30 or 40 square inches for each

patient. That for permitting the vitiated air to pass out should be directly over the head of the patient and at the highest point of the room. The inlet should be placed in or near the floor if the air is to be warmed; if not, at a height of 8 feet from the floor and directed upwards. The in-coming air may be heated by passing through small chambers containing lead tubes containing steam or hot water. Abundance of warm air flowing into the ward under the bed of each patient, and flowing out high above his head is the perfection of ventilation and heating. As in hot weather the air should not be heated, it would be desirable to have provisions for ventilating wards both in hot and cold weather. The inlets used on cold days might be closed during warm ones, and the floor-ventilators brought into use. The outlets might, however, be the same on both occasions. The ends of the inlet tubes next the room should spread out like the mouth of a trumpet. They should be covered with coarse wire gauze, and they should be frequently examined and cleaned often if necessary. Wire or muslin gauze over ventilators serves to keep out smoke and dust. It is important that the air consumed by each patient should reach him directly and without passing over the beds of other patients; arrangements should therefore be made to supply pure, and carry off foul air, close to each patient. In some wards the air for several persons is introduced through but one opening, and a portion of it passes over or close to several beds before it reaches the patient it is intended for. Although it is desirable for obvious reasons to have only one row of beds in the ward, yet we must at present tolerate two rows. In surgical wards and others where isolation of patients is generally desirable, why not separate the beds by glass partitions, 7 or 8 feet high? They would not cost much. If the patients did not desire to look at each other, the glass could be muffed in a minute with a little whiting and water. If such a plan were adopted, the air would ascend from each bed and pass out and at the ceiling without commingling, or at least with much less commingling with the general atmosphere of the ward; but we fear it is useless to suggest such alterations in the structure of our hospitals, and, no doubt, they would be considered too costly and not called for.

For the future it is most desirable that hospitals should not be raised higher than one storey besides the basement, for they could then be much more easily ventilated than the existing two and three-storied buildings. In the excellent article on Hospitals in the Report of the Massachusetts Board of Health for 1874, the construction of

one-storied hospitals is strongly recommended. "The cost of construction would be very much less than in the many-storied palaces, but the cost of administration would certainly be greater. Whether these would be counterbalanced by the cheapness of the original outlay for buildings, we are unable to say—probably they would not. But this is not a mere question of cost, nor one of ordinary economy, but of economy of life, and it cannot be put aside with the usual argument of thrift. In ventilating a two or three-storied hospital, there is always danger that the foul air from the lowest may enter those above it. Although there may be great difficulty in constructing large one-storied hospitals in cities such as Dublin, there ought to be none in the case of rural hospitals—those attached to country workhouses.

Miss Nightingale, in her admirable work on Hospitals, insists on the importance of constructing those buildings in detached blocks or pavilions, placed side by side, and separated by spaces equal to twice the height of each block. The buildings to consist preferably of a single storey, resting upon an arched and ventilated but uninhabited basement. Each pavilion to be thoroughly ventilated and lighted, and to be provided with baths, water-closets, sculleries, and unconnected with the other pavilions. An airy corridor to give egress to the patients, and admission from the buildings devoted to the administration. The Herbert Hospital at Woolwich is constructed upon the block system. It consists of seven pavilions—four double and three single—raised on basements (the latter are used as store-rooms, museum, &c.), each having two floors. Each ward contains thirty beds, in two rows, and includes about 40,000 cubic feet. At the end of each ward a large window affords an excellent prospect of the surrounding district, and of the beautiful gardens surrounding the hospital. There is one window for two beds, and the block is placed a little to the north of east, and has windows on each side. The sun's rays penetrate to the interior during nearly the whole of its course. The provisions, medicines, clothes, bedding, and fuel, are conveyed along a corridor in the basement, and elevated by lifts to the wards. There are open terraces on the corridor for the patients to promenade in fine weather, and a covered corridor for use during rain or excessive cold. The bath-rooms and water-closets are situated at the end of each block, furthest removed from the great central corridor, and well surrounded by air. The wards are each warmed by fuel consumed in two open fire-places, with descending flues, and as the

latter pass through chambers communicating with the outer atmosphere, the air introduced into the wards at these places is warmed. The floors are of oak resting on iron beams, filled in with concrete. The offices, &c., of the administration are contained in a block, placed in the front of the hospital. Hot and cold water circulates in pipes throughout the building.

The wall surface of hospital wards should consist of enamelled tiles, of a pleasing colour. They, however, are dear, though there might be easily manufactured, for the purpose of lining walls, a cheap, salt-glazed kind, of the nature of crockery-ware. Parian, though much extolled as material for covering the walls of hospital wards, is in reality somewhat absorbent. It is of great importance that the wall-surface should admit of being occasionally washed with soap and water. This cannot be done if they are whitewashed or coloured in distemper, as is generally the case. As little furniture as possible should be kept in the ward ; and clothes and bedding should be the only absorbent materials tolerated. Venetian blinds placed outside the window, but controlled from within, are better than the ordinary linen blinds. Iron bedsteads should be used, and the beds may consist of hair mattresses or straw, preferably the former. The water-closets and sculleries should be in buildings attached to (but outside of the walls of) the ward. The ventilating shaft, with which the tube leading from the water-closets and scullery should always be provided, ought to ascend to a point as high as the chimney-pots, and be provided at its outlet with a loose charcoal plug to absorb foul gases. Every hospital should have a spare ward or wards, so that, from time to time, each ward could be thoroughly cleansed ; for it is not desirable to expose patients to the damp atmosphere of a recently-washed room.

Separate hospitals for different classes of diseases are much to be desired, and in small towns and rural districts the patients should at least be distributed in the wards according to their maladies. Under no circumstances should persons suffering from contagious and non-contagious diseases be placed in the same ward, or, if at all possible, in the same building.

We quote from the evidently well-considered remarks of Mr. Simon on Hospitals, in his Sixth Annual Report to the Privy Council, the following passage :—

“ That which makes the healthiest house, makes likewise the healthiest hospital ; the same fastidious and universal cleanliness, the same never-ceasing vigilance against the thousand forms in which dirt may disguise

itself in air, in soil, and water, in walls, and floors, and ceilings, in dress, in bedding, and furniture, in pots, and pans, and pails, in sinks, and drains, and dust-bins—it is but the same principle of management, but with immeasurably greater vigilance and skill; for the establishment which has to be kept in such exquisite perfection of cleanliness, is an establishment which never rests from fouling itself; nor are there any products of its foulness, nor even the least odorous of such products, which ought not to be regarded as poisons. Above all, this applies to the fouling of the air within hospital wards by exhalations from the persons of the sick. In such exhalations are embodied the most terrible powers of disease—the spreading flames, as it were, of some infections, and the explosive fuel of others; and any air in which they are let accumulate soon becomes a very atmosphere of death. Against this danger ventilation is the one possible safeguard—ventilation which, with continuous current, shall always be bearing away, as rapidly as evolved, every volatile taint which rises from the sick. So that for hospital hygiene, ventilation requires pre-eminent regard. And if ever the phrase ‘well-ventilated’ may be (though it never ought to be) at all indulgently construed in respect of a common dwelling-house, it must never in respect of a hospital, be construed but with the utmost conceivable strictness.”

Apropos of metria, we have a remarkable paper “On the Means employed at the Preston Retreat for the Prevention and Treatment of Puerperal Diseases,” by Dr. William Goodell, Professor of Diseases of Women and Children in the Hospital of the University of Pennsylvania, and a well-known writer on obstetrics and hygiene.* Dr. Goodell tells us that—

“The Preston Retreat is a small lying-in hospital for reputable married women. The yearly average has thus far been about one hundred labours, but is now rapidly increasing. It contains four wards, each with a capacity of 9,153 cubic feet, and each furnished with five beds, of which not more than four are generally occupied at one time. The ventilation in winter is obtained by the escape of the cold and foul air through an old-fashioned fire-place, in which a jet of gas is kept constantly burning, and by the free admission of pure air, which has been heated in the basement by passing around steam-chests, with large radiating surfaces. In summer, the admission of pure air depends exclusively upon open doors and windows, and the ventilation is, consequently, less perfect than in winter. In the spring and autumn months there are many days in which the temperature is too warm for the free admission of heated air, and yet too cold for open windows. These are,

* American Supplement to the “Obstetrical Journal of Great Britain and Ireland,” for July and August, 1874.

therefore, the two seasons of the year which I dread the most, and in which I avoid, as much as possible, crowding the wards.

"The wards are used invariably in rotation. By close management, and by crowding walking patients together, one of these wards in its turn stands idle for two or three weeks. During this time the doors and windows are kept open. Before it is again occupied by patients, the walls, floor, wood-work, and furniture—all of which are painted—are thoroughly scrubbed with carbolic acid soap, and then mopped over with a solution of half a pint of carbolic acid (Calvert's No. 4), to one pail of water. From this time until the ward is again vacated, no portion of it, not even the floor—unless accidentally soiled—is touched with water.

"The nurses wear such clothing only as can be washed. As soon as the inmates of a ward are well enough to take care of themselves or of one another, their nurse is relieved from duty. She now takes a soap bath, puts on an entirely clean suit of clothes, and goes into a ward which has been thoroughly ventilated and cleansed. Before a new batch of patients falls to her care, she has had one week or more of rest. I visit the wards thrice daily, beginning always with the ward last occupied, and with the patient last delivered. Whenever a vaginal examination is needed, it is put off until all the other patients have been seen. The examining finger is then anointed with an ointment containing carbolic acid, and the hands are afterwards washed with carbolic acid soap. *Post-mortem* examinations I never perform. Whenever one is needed, an expert is called in, and remunerated for his services.

"The beds consist of a tick filled with fresh straw and covered with an army blanket. After the discharge of a patient, her bed is emptied, and the tick, blanket, and bed-clothes are boiled in water to which a little carbolic acid has been added. Each bed is furnished with a feather bolster and pillow, which are exposed on slats to the air when not in use. Once a year every bolster and pillow-tick in the house is washed, and the feathers baked and "renovated," as it is technically termed. They also pass through the same process whenever soiled, or whenever used by a patient whose convalescence has been delayed."

The patients treated in this Retreat belong to the poor, and, not less necessarily, to the comfortable classes. Each patient remains, on the average, in the Retreat six days before, and eighteen days after, delivery. On admission, and at least a week before delivery, a warm bath is taken. If the heart be feeble, quinine, muriated tincture of iron, and phosphoric acid are administered.

"The habitual constipation of pregnancy is met by the administration, either in the morning of a teaspoonful of pulv. glycyrrhizæ comp. of the Prussian pharmacopœia; or, at bed-time, of four Lady Webster's pills.

(pil. stomachicæ). When a more active purge is needed, the pulv. jalapæ comp., or the pil. cathartic comp. (U. S. P.) is given. Head-ache and sleeplessness are treated by warm baths, by full doses of potassic bromide, and by the above-named medicines, when indicated; albuminuria is dealt with in pretty much the same way, but always with iron and phosphoric acid. The regular diet is plain and wholesome, yet more liberal than is usual in charitable institutions. Apart from the frequent use of aperients, a relaxed condition of the bowels is promoted by serving table syrups at every meal, by fruits—fresh or dried, according to the season—and by all such vegetables as can be eaten raw, viz., lettuce, cress, radishes, leeks, onions, tomatoes, cucumbers, and cabbages. Of these, in this latitude, an ample supply is obtainable during nine months of the year."

Dr. Goodell believes that muscular rest after labour is not indispensable. The patient is encouraged to sit up as soon as she has the slightest inclination so to do. Bed-pans are not employed, and the patient is obliged, except in rare cases, to wash herself.

"Firmly believing the nozzle of a syringe to be the medium of virus communication from patient to patient, I avoid the use of vaginal injections as much as possible. For a like reason, the temperature thermometer is not habitually used, but only in single cases, as an aid to diagnosis.

"Whenever the lochia are offensive, or the pulse is over 90, or the thermometer indicates a temperature higher than natural, or pelvic pains are complained of, or, in short, whenever any untoward symptom appears, quinia is given in from six to ten-grain doses every four hours, until the ears ring. In addition, for abdominal pains large doses of morphia are given, and the whole belly is painted with iodine, and covered with a mush poultice. The canonical purge on the third day is dispensed with."

Dr. Goodell's views in reference to many points in the management of puerperal women are perfectly revolutionary. He considers a binder unnecessary after the first few hours, and has doubts as to its utility under any circumstances; he considers milk fever a myth; he believes that the patients should get out of bed long before they are usually allowed by their physicians.

"In my experience a woman ordinarily feels stronger on the fifth day than she does on the ninth, if rigorously kept under quilts and blankets. Once more: the upright position not only excites the womb to contract, but, by distributing the blood and equalising the circulation, it actually

lessens the amount of the lochia and shortens their duration. On the other hand, the dorsal decubitus keeps up a passive congestion of the womb as a whole, the engorgement of the greatly hypertrophied placental site, and a blood-stasis in the now thickened posterior wall—all important factors in hindering the process of involution. Again: uterine diseases are hardly known among those nations whose women early leave their beds. From passages in the writings of the classics, it is evident that amongst the ancient Greeks and Romans—those models of physical strength and beauty—the women rose and even bathed in a running stream, very shortly after delivery; in some cases on the very day. Finally: what is sounder than all theory, a sufficiently long and well-sifted experience has proved to me that, by such a treatment, convalescence is rendered far more prompt and sure. At this result—very unexpected to the multiparous patients of the Retreat—they are constantly expressing their surprise."

Dr. Goodell furnishes the following statistics as proof of the success which has attended his method of treating parturient women:—

"Out of 756 cases of labour, there have been
2 deaths from septic causes.
1 death from the bursting of an old abscess.
1 death from haemorrhage.
2 deaths from non-puerperal diseases."

THE ADULTERATION OF FOOD ACTS.

On the 27th April, 1874, the House of Commons appointed a Committee to inquire into the operations of the laws relating to the adulteration of articles of food, drink, and drugs. The Committee met on the 30th April, and elected Mr. Clare Reid chairman. They met subsequently thirteen times, and terminated their labours on the 3rd July. They examined 58 witnesses, of whom the only chemists were Drs. Hassall, Voelcker, Tidy, Macadam, Wanklyn, Cameron, and Bartlett, and Messrs. Allen and Sutton. The other witnesses were chiefly persons engaged in the sale of articles alleged to be very liable to adulteration—tea, mustard, cocoa, &c. The Committee report that although the Act has done much good, it has, at the same time, inflicted considerable injury, and imposed heavy and undeserved penalties upon some respectable tradesmen, owing chiefly to the want of a clear understanding as to what *does* and what *does not* constitute adulteration, but in some cases to the conflicting decisions and inexperience of the analysts.

The Committee, therefore, recommend that the Act should be amended to remedy its defects.

The Report states the Act has been by no means generally used; and in many cases where it is applied, and officers have been appointed, its operation has been of the most restricted character. Even where competent analysts had been elected, special food inspectors were not associated with them. Only in 26 boroughs and 34 counties have appointments been made, while the number of boroughs under the Act is 171, and of counties, 54. In the City of London the Commissioners of Sewers, and in the rest of the Metropolis all the Vestries or District Boards under the Metropolis Local Management Act, have appointed analysts. The Report does not refer to appointment of analysts in Ireland, in which country 18 counties and 7 cities had appointed Public Analysts up to the Summer Assizes of 1874.

The number of proceedings outside the Metropolis and a few large towns was small. "The amount of good resulting from the Act must not, however, be judged by the number of the prosecutions and convictions. The deterrent effects are undoubtedly great, and the opinion of the promoters has been substantiated, that the most beneficial effects of the Act would be to prevent adulteration, rather than to punish it."

The Committee recommend that a qualification of some kind for the office of Public Analyst should be created, and also that the Inspectors of Food should have power to compulsorily purchase articles which they suspect to be adulterated, but which it was not likely would be voluntarily sold to them. The latter is, we think, the most valuable recommendation of the Committee.

The evidence laid before the Committee with reference to milk showed that, previous to the passing of the Act of 1872, it was very generally adulterated with water, but that since then it has greatly improved in quality, wherever the Act has been enforced. The Committee say that "too high and rigid a standard has been fixed by some analysts, and no sufficient allowances have been made for the natural variations in milk. Ten per cent. of milk solids may be more difficult to obtain under certain unfavourable conditions than 12 or 14 under a more generous diet, a warmer atmosphere, and more comfortable lodging. Not only does the quality of milk vary with the food, the breed of cattle, the time of year, and treatment of the animals, but the milk of one cow of the same breed will differ greatly from that of another, managed under

a precisely similar system; and further, the first and last pint of milk which a cow gives at the same milking will present all the difference between an extremely poor and an exceedingly rich milk. Allowances should therefore be made for these natural variations which some purely scientific chemists seem to have occasionally overlooked."

We have made thousands of analyses of milk, and have come to the conclusion that the mixed milk of a herd of cows never contains less than 12 per cent. of solids. The prolonged and accurate investigations of Wanklyn show that the solids, minus fat, in pure milk, never sink below 9·3 per cent.

The Committee state that the fraudulent abstraction of cream should be punishable.

With respect to butter, the evidence showed that it was not frequently adulterated, but occasionally foreign butters are mixed with lard and other fats. "Attempts are being made in France and elsewhere to manufacture artificial butter, chiefly from the fat of animals; if these articles are composed of wholesome materials, and not sold as butter, your Committee see no reason to forbid their sale. The slight colouring matter occasionally added to butter, cheese, &c., should not, in the opinion of your Committee, be regarded as an adulteration."

Bread, the Committee state, on the whole, appears to be fairly pure. Potatoes are used to help fermentation, and rice flour is employed in dusting the loaves. No doubt the chief adulteration is alum, and evidence was adduced showing the great difficulty which the best chemists experience in discovering minute quantities of alum in bread. The defect in the mode of determining alum in bread is, however, one easily remedied.

The Committee are disposed to allow mixtures to be sold as such if properly labelled.

The Committee heard a great deal of evidence with respect to corn flour, which one witness stated should be prohibited from being sold, on the ground that it was innutritious. The Committee report that the preparation of corn flour "is quite legitimate, and that, like arrow-root, sago, and other starch foods, corn flour is perfectly wholesome, but that it should not in any case be given to infants without a considerable admixture of milk."

The Committee report that the evidence laid before them showed that spirits were rarely adulterated, but that whiskey was often sold new, and full of fusel oil, which rendered it highly

poisonous. We strongly pressed this point upon the attention of the Committee, and recommended that they should suggest in their Report the desirability of prohibiting the sale of whiskey until it was at least two years old. Wines, as proved before the Committee, were fortified by brandy, and mixed with each other, but no proof was given that they were adulterated with foreign matters, such as logwood, &c. It was shown that water was added, in enormous quantity, to spirits and, but to a less extent, to malt liquors, sometimes in the latter case with a little salt also.

"Your Committee suggests that the two Acts to which this inquiry refers, viz., the Adulteration Acts of 1860 and 1872 (23 & 24 Vict., c. 84, and 35 & 36 Vict., c. 74), should be repealed, and another Act, consolidating and amending these statutes, substituted for them. That in the new Act, besides the changes already recommended, it should be provided that the fraudulent abstraction of important properties of any commodity should be a punishable offence, but that a distinction should be drawn between this and the fraudulent or noxious addition of ingredients, which more strictly speaking constitutes adulteration; and that Clause 9 of the Act of 1872 should be so far modified as not to make it incumbent on the analyst to give a certificate, except when he finds the articles submitted to him to be adulterated or debased. They further recommend that the Act should be made compulsory.

"In conclusion, your Committee believe it will afford some consolation to the public to know that in the matter of adulteration they are *cheated* rather than *poisoned*. Witnesses of the highest standing concur in stating that, in the numerous articles of food and drink which they have analysed, they have found scarcely anything absolutely injurious to health, and that if deleterious substances are occasionally employed for the purposes of adulteration, they are used in such minute quantities as to be comparatively harmless. Your Committee believe that it is the intention of Parliament that consumers should be protected from frauds, and that they should be enabled to procure the articles they ask for and require. But your Committee do not consider that Parliament desires needlessly to hamper or fetter trade, still less to interfere between the buyer and seller with the view of regulating prices, or attempting to assist the consumer in ascertaining the real money value of any marketable commodity."

THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIV.—*Notes on Cases of Vesical Calculi.* By Mr. E. STAMER O'GRADY, M.R.I.A., Ch.M., M.B., A.B., University of Dublin; Surgeon to Mercer's Hospital; Fellow and Member of the Surgical Court of Examiners, R.C.S.; Ex-Lecturer on Surgical Anatomy at the Carmichael School of Medicine.

First Case of Lateral Lithotomy.—P. D. (No. 157), by occupation a National School teacher, fifty years of age, and a fairly strong and healthy-looking man, was admitted to the hospital in July, 1867. The patient had been for ten years married, but had no children.

I am indebted for this case to the kind remembrance of my friend and old fellow-student, Dr. A. Johnston, M.B., then and now resident at Westport, County Mayo, who some time previously had treated Mr. D. for a very tight stricture of the urethra, and so successfully that full-sized instruments could subsequently be introduced. The patient told me that his trouble was of long standing, the symptoms, however, having become more marked, and progressing with increasing severity for the last five months. About that time, which was immediately subsequent to his having been treated for the stricture, he had, at short intervals, passed three small calculi, each of them about the size of an ear of corn; he suffers much, particularly after walking, and at night. The sound, on introduction.

at once struck an apparently small stone; with the intention of breaking this up, a lithotrite was passed some days subsequently, and a calculus readily grasped. The gauge on the stem of the instrument showed the diameter of the stone to be rather more than one and one-third inch; and, moreover, when it was so held, and the lithotrite used as a sound, on searching, the presence of another calculus became at once evident. The project of "crushing" being, under these circumstances, inadvisable, was abandoned. From the period of admission to the hospital, palliative treatment was sedulously attended to; hip baths, with nitric acid, and hyoscyamus in free doses, afforded considerable relief; throughout, the patient was able to make use of a good diet.

August 12th.—An enema was administered early in the morning, and acted well. (The bowels had been freed by medicine a couple of days previously.) The patient, who had retained his urine for three hours after being brought into the operation theatre, was chloroformed; a No. 11 staff having been introduced and confided to the care of an assistant, he was bound up in the orthodox lithotomy position, and the ordinary lateral operation proceeded with, the staff being well held up against the arch of the pubis.

The left forefinger, on entering the bladder, at once felt a calculus, which was readily extracted in the usual way by the forceps; it was of considerable size, and faceted on two surfaces. Two more calculi were, with like facility, taken away, also some large pieces which had become broken off their surfaces. Tepid water was then injected to clear out any remaining fragments or detritus. After the adjustment of the *canule à chemise*, the patient was unbound, borne to a well-heated bed, and an opiate enema immediately administered, his legs being placed slightly flexed over a couple of pillows, approximation of the knees being secured by a handkerchief lightly tied around them.

The operation was borne well. Three hours after it a few drachms of venous blood dribbled from the penis; this ceased spontaneously; the urine, which ran out freely through the canula, over the draw-sheet, was quite clear, even that first discharged having scarcely any sanguineous tinge.

10 p.m.—Has had a good day, getting opiates occasionally, acetate of potash in solution every third hour, and barley water *ad libitum*. Patient is gently perspiring; he already feels much relieved from his state of previous suffering; pulse, 94; has just had

four hours consecutive sleep; urine comes abundantly. The canula was removed at nine o'clock, p.m., on the 13th, being thirty-five hours after the operation.

18th (sixth day).—Matters have continued to progress most favourably. For the first time since the operation urine came by the penis this morning, accompanied by a good deal of pain and scalding. The bowels not having been moved since the operation, a purgative enema was given, to which they responded freely. After a very few days more the urine came for the most part through the natural passage, but it was not till the 9th of September (28 days) that it finally ceased to make an appearance at the wound; this now rapidly cicatrised, and the patient soon returned home in excellent health.

The calculi were phosphatic, laminated, and very friable; on section, exhibiting a chalk-like appearance. Though two of the three were of considerable size, several of the diameters, as shown by the callipers, measuring from one to one and a-third inch, yet the aggregate weight of the calculi and fragments only exceeded an ounce and a quarter by a very few grains.

Dr. Johnston has been kind enough to make me acquainted with the sequel of this case. He tells me that in the spring of '72 he treated Mr. D. again for tight stricture, which yielded after six weeks, his patient then remaining well till three months ago (July, 1874), when Dr. Johnston was again applied to, and after much trouble got in a No. 2 gum elastic catheter *through the stricture*, but there was great subsequent difficulty in passing the instrument on into the bladder, there being a strong tendency for it to stick in the slit that was made at the neck of that viscus when the operation was performed. Dr. Johnston successfully overcame this, and he informs me that the day before writing to me he had passed a No. 11 silver catheter without any trouble, and that Mr. D. is now in good health.

Second Case of Lateral Lithotomy, my notes of which have unfortunately been lost. The following memoranda, from memory, are, however, I believe, accurate. This case, which was operated on some time subsequent to the preceding one, was brought to me by a hard-working and earnest pupil of the hospital, the late Mr. Gerald Byron, whose early and premature decease soon after he had qualified himself for the practice of his profession, was the source of sincere regret to all who knew him.

The patient, a native of Dublin, *but who had led a seafaring life since childhood,** was a well-built, powerful man, aged about nineteen. He had long suffered—at first paroxysmally, intervals of relief of varying duration being experienced, but, as time passed on, his agony became more and more persistent and unendurable; bloody urine was now frequently passed.

The idea of a stone being in his bladder was scouted by the patient, inasmuch as he had been often examined with the sound, and by surgeons of repute, without one being discovered. Each such investigation was attended and followed by extreme suffering. A full opiate suppository was given, and the patient having been detained in the house and at rest for an hour subsequently, reluctantly permitted me to pass a sound. The instrument used was one purchased in France, as Maisonneuve's, and was very similar in shape to that known here as Sir H. Thompson's. The introduction was effected without difficulty, and with a clang distinctly audible to Mr. Byron, the patient, and myself. A stone, evidently of large size, was at once struck.

After some days in the hospital devoted to rest and palliative treatment, the lateral operation was performed, the patient being cut on a No. 9 staff (the largest the urethra would admit); the stone was easily grasped in the forceps, but, owing to its size, could not be extricated through the incision in the prostate; this was therefore enlarged, and the calculus, an almost globular one, and excessively rough, having been again seized in a strong forceps, was slowly extracted, care being taken to avoid, as far as possible, laceration of the deeper structures in its removal. As in the previous case, accessory matters of detail were carefully attended to, before, during, and subsequent to the operation. The *canule à chemise* was used, and a full opiate enema given after the patient had been returned to bed. This case progressed most favourably, the man leaving the hospital in about five weeks subsequently. The first urine passed by the penis was about the tenth day.

The calculus was of the oxalate or mulberry variety. The callipers measurements were rather over one and a-half inches in length and breadth, by one and a-quarter in thickness; its exterior was very rough and tuberculated—in three or four spots almost spiculated. On section it exhibited to some degree the arrangement known as the "alternating." Though very dense, the external laminæ had been in part broken off by the forceps.

* One of the cases quoted at the close of this paper was also a sailor.

After the lapse of a year or more this man presented himself for treatment of a gonorrhœa; and I remember that, on being questioned, he stated that he perceived no difference in his sexual powers and desires as contrasted before and after the operation. He had remained quite free from any further vesical trouble. I believe him to have since married, and to remain quite well.

Third Case of Lateral Lithotomy.—J. K. (No. 906), a very fat, lively little fellow, three and a-half years of age, was admitted to the hospital August 8th, 1871. His mother stated that for over a year she had observed him constantly pulling his prepuce; he suffered great pain, specially towards the end of micturition, habitually passing urine in bed, and awaking crying out. The calculus subsequently proved to be, for a child of his years, a large one, yet the sound, though it struck the stone on the first exploration, failed subsequently on different occasions to detect its presence. Bicarbonate of potash and hyoscyamus, with hip-baths in the evening, afforded relief.

August 19th.—An enema of soap and warm water was thrown up early in the morning (the bowels had been gently acted on the day before); it duly came away. The little patient having been chloroformed by Dr. Mason (my surgical colleagues, Messrs. Ledwich, Morgan, and M'Dowell, also being present and kindly assisting), a No. 6 child's staff was introduced, but not finding the stone, it was withdrawn, and replaced by a silver instrument, which to both feeling and hearing demonstrated its contact with the foreign body. A small quantity of tepid water having been injected through this instrument, the staff was substituted for it, and again it could not be made touch the stone.* Mr. Ledwich took charge of the staff, the patient having been secured in the usual way, held it well up to the pubes, and by gentle compression of the glans around it, prevented the escape of the fluid contents of the bladder.

The perineum was unusually narrow and extremely fat. The operation was proceeded with in the ordinary manner, the anatomical differences between the child and the adult in this region

* It is not free from risk to cut under similar circumstances. It is well known that, owing to the difference in their shapes, a sound might easily pass on into the bladder, and not be followed by the staff; the latter instrument straying into a false passage without the surgeon being aware of it till the malposition became demonstrated during the operation. This circumstance has occurred in the hands of experienced operators.

being borne in mind and acted on, the handle of the knife being kept well depressed during the deeper periods of the incisions. No difficulty was experienced in getting into the bladder, the finger accompanying the knife felt and was easily hooked on the stone, which was then readily removed on a flat light scoop which was slid in underneath it. There was a good deal of sanguineous weeping, which was arrested by the *canule à chemise*, well packed with cotton wadding, and gave no subsequent trouble. One spouting vessel required ligature. On being returned to bed, five drops of tr. opii were given; this opiate had to be repeated, and was then followed by sleep. Abour two hours after the operation, urine, deeply tinged with blood, began to flow through the canula; towards evening it had become clear. At "bed-time," another opiate.

20th.—After an excellent night, during which no further opiate was needed, the little fellow was found in "great blood," shaking hands and wanting to play with the students. The canula, having become in part protruded, was removed. No pulse can be felt anywhere, on account of the fat state of the patient. Small doses of quinine and muriate tincture of iron were ordered, in a prophylactic point of view.

The progress of this case towards recovery was rapid and uninterrupted. For a few days subsequent to the operation there was very considerable oedema of the scrotum, which was not a source of any special trouble, and subsided spontaneously. On the 24th the bowels acted of themselves. On the evening of the 23rd (about 108 hours after operation), urine, for the first time, came by the penis; in another week it was passing almost exclusively by the same channel; and early in the ensuing month the boy was dismissed quite well. The calculus in this case weighed somewhat less than a quarter of an ounce, its measurement being $\frac{1}{2}$ -inch long, $\frac{1}{4}$ -inch wide, and $\frac{1}{8}$ -inch deep; it was an oxalate or mulberry calculus, very rough and tuberculated, the outside of a much lighter shade of colour than is usually seen in this class of calculus. Section showed the interior to be of a darker hue.

Fourth Case of Lateral Lithotomy.—P. B. (No, 1,376), a much worn and emaciated child, aged four years old, was admitted to hospital June 24th, 1873. According to his mother's account, this unfortunate creature had manifested symptoms of stone for three years. Relief had been sought at another hospital, where, a year

previously, no stone could be found. Since then the child had been abandoned to his fate, his parents believing him to be incurable. As time progressed, the intensity of his symptoms became aggravated. He was constantly dragging at his prepuce. The pain and distress after urination was so very great that he would crouch down and roll about on the floor. His life was one of unmitigated misery, increased, if possible, for some months past by a bad attack of whooping cough. For more than a year there had been troublesome, and latterly almost constant, prolapse of the bowel. Examination with the sound, which seemingly caused much pain, at once showed the presence of the calculus.

During the few days which intervened between his admission and the operation, such relief as might be was afforded by hip-baths, suitable cough mixtures and hyoscyamus, in combination with bicarbonate of potash. The bowels also were kept gently opened.

June 28th.—A soap and water enema was administered early in the morning, and acted well in due course. In consequence of the state of the chest and the child's generally enfeebled condition, Dr. T. P. Mason, who kindly gave chloroform, deemed it advisable not to press the anaesthetic, which, moreover, the child did not seem to bear well. Scarcely had its administration been begun when the rectum was forced down to the extent of at least three inches. The same staff as was used in case No. 3 was introduced, and at once touched the stone. The little patient was secured in the ordinary way. Mr. Ledwich, the senior surgeon of the hospital, kindly took charge of the staff during the operation, keeping it well up under the arch of the pubis, by no means an easy task, as the patient continued to struggle violently and persistently. The prolapsed bowel, which could not even for a moment be kept returned, was guarded and gently drawn out of the way of danger by the fingers of the left hand, which also steadied the perineum. The usual incisions were made slowly and with great care, so as to avoid injuring the gut. The groove on the staff was easily entered, and the left index nail inserted therein, and yet there seemed to be something awry with the staff; retaining my left hand *in situ*, and taking the handle of the staff in the right, the instrument was gently manipulated, using it to search for the stone, which could not now be found. *Obviously the beak of the instrument was no longer in the bladder.* In the struggling of the child it had become displaced, and in spite of the steady and assured grasp with which

Mr. Ledwich had endeavoured to retain it in the position indicated—*i.e.*, hooked under the arch of the pubis—the staff had perforated the delicate structures of the child, and its point had passed on between the rectum and bladder. The now worse than useless instrument was in part withdrawn, and an attempt made, but without success—keeping the point well against the upper surface of the urethra—to get it again into the bladder; this failing, the staff was withdrawn altogether, and a No. 5 German silver catheter, of Sir H. Thompson's form, substituted for it. Providentially this slipped into the bladder, and audibly struck the stone. Five ounces of tepid water (none of which appeared at the wound) were now injected through this instrument, the polished shaft of which could not be felt exposed anywhere along the cut. Considering the great uncertainty, if not improbability, if this instrument were withdrawn, of getting another and more suitable one in, I determined to continue the operation with the catheter as my guide. This, not being adapted for “hooking” under the pubis, was placed with the under surface of the point resting against the stone, and the handle was given in charge to Mr. Ledwich, our other surgical colleagues kindly holding the pelvis and limbs of the child as firmly as possible. Keeping the left forefinger in the wound, and still protecting the prolapsed gut, the incision was carefully deepened with the ordinary lithotomy knife until the urethra was finally opened into alongside the catheter and against the index nail; the knife was then withdrawn, cutting, as usual, downwards and outwards, the fluid contents of the bladder following it. The probe-pointed lithotome being then passed along the catheter, and accompanied by the left forefinger into the bladder, the calculus was immediately felt. Now that the bladder was empty, it was located high up and behind the pubis. The forceps having been introduced, as usual, on the gorget, several fruitless attempts were made (aided when such proceeding seemed likely to be of service by the fingers in the rectum, or by pressure above the pubis, great care being taken in the repeated introductions of the fingers and instruments to avoid laceration of the urethra, and detachment of it or the bladder from their connexions, an accident very facile of occurrence at this early period of life) with this instrument and the scoop to get the calculus away, but for a time the spasmodic embrace of the bladder around it frustrated every such attempt. At last a scoop, bent to a suitable angle, separated the stone, and brought it within the grasp of a flat, but

strong forceps, which withdrew it without further difficulty. On digital exploration no other calculus could be found. There was no bleeding of any consequence, the rectum having been returned, and the *canule à chemise* placed and secured *in situ*, the patient, who had been in the operation theatre nearly half an hour, was unbound and removed to a warm bed. Five drops of tincture of opium were given in a spoonful of brandy. The bowel almost immediately protruded again, and in its descent to a considerable extent forced out the *canule à chemise*. As there was no bleeding, this tube was removed altogether, lest its presence might further encourage the tendency to prolapse.

The child rallied well, urine soon commencing to flow on the folded draw-sheet, usually in paroxysmal jerks, and when such discharges occurred there was much pain. Nevertheless, he slept at intervals; the rectum, as it came down, being reduced by the nurse in attendance. Three opiates were required during the day. Towards night there was pain in the bottom of the belly; this was relieved by hot stypes. After 2 o'clock, a.m. (29th), he had a good night, sleeping soundly, and only starting in pain when the dash of urine came through the cut. At morning visit pulse was 140. The progress of the case now continued most favourable, the little patient being well supported throughout, and after the subsidence of the feverish reaction getting a ferruginous mixture. On the 2nd July, the bowels were gently opened by castor oil, followed by a warm water enema.

Urine was passed by the penis for the first time on the 7th (*i.e.*, over 220 hours after the operation), the first two evacuations being attended with spasm and great pain. Three days later the urine had finally ceased to come by the wound, about six ounces accumulating and being discharged by the penis, sometimes accompanied by paroxysms of severe pain, which, however, steadily became less and less frequent and severe; the child's health meanwhile improved apace, and before the end of the month he was allowed to leave the hospital, restored to perfect health, and quite free from urinary trouble. Prior to discharge he was sounded carefully, and no evidence of any further foreign body in the bladder found. It is noteworthy, that from the moment of operation the whooping cough underwent a most marked amelioration, and the child rapidly got rid of it; also of the prolapse of the bowel. The stone in this case weighed a little over a quarter of an ounce, measuring $1\frac{1}{8}$ inches in length by $\frac{1}{8}$ ths and $\frac{1}{8}$ ths in

breadth and thickness respectively; it is a lithate stone, oval in shape, roughish, and on section of a fawn colour, the centre being the darkest part.

Mr. Michael J. Fitzpatrick has very kindly traced out the present whereabouts of this child, and informs me that he has continued quite free from any urinary or rectal annoyance, and is at present (Oct., 1874), in excellent health.

Most surgeons in this country take a keen interest in all that relates to the treatment of stone in the bladder; and the practical details of cases of that affection are wont to be perused by the profession with attention. The surgical reader will not fail to note such particulars in any of the accompanying cases as are worthy of comment, and which, even though devoid of attraction on the score of novelty, nevertheless, from the infrequency of opportunities for the operative treatment in this country of stone in the bladder, retain unimpaired interest when recurring in our individual practices.

Stress has been laid on the height of the table on which stone cases are cut. There are still extant at Mercer's Hospital four stump feet for special use on lithotomy occasions, which can be fitted to the legs of the operation table, and so raise its surface some few inches. The table in its ordinary condition stands two and a-half feet high, and, so far, I have experienced no difficulty whatever, even in the case of the two children, in getting sufficiently under the work to operate with all ease and safety—merely a folded blanket, secured as usual by a few turns of roller bandage, being on the table.

It would be obviously out of place, in a journal such as this, to enter at any length, in individual connexion with the above cases, into the details of the lateral operation for stone. In all of them two knives were used, the primary incisions made with the scalpel-shaped knife being free and deep, a few further touches sufficing to open the urethra, and allow the nail of the left index finger to be hitched on to the groove in the staff, the knife as withdrawn deepening the profounder portions of the cut; the long, probe-pointed lithotome, guided by the finger-nail, was then entered on the groove of the staff, and steadily pressed on into the bladder, accompanied by the finger.

Except in case No. 3—where, for the reasons specified, the services of the instrument were not required—a blunt gorget of suitable size for the individual was used.

The staffs for the two adult cases were “grooved on the side;”

that on which the two children were cut was so too, but had the groove somewhat more towards the dorsal aspect of the instrument.

In the after-treatment, the most scrupulous attention was paid to keep the patients dry and clean, and to guard against chafing or bed-sores.

Dr. Johnston has noted a circumstance of very great interest, indeed, regarding the present state of the first case—i.e., the slit at the entrance of the bladder, in the line of the operation incision, and which, after Dr. Johnston had mastered the difficulties of the stricture, proved, he tells me, the source of serious further trouble and impediment to getting the catheter into the bladder. It would be a matter of much practical interest if any observations regarding this, at all times, embarrassing and, under some circumstances, dangerous or, possibly, even fatal, sequence of lithotomy, could be obtained from surgeons who have had the treatment of urethral stricture in patients who had been previously subjected to lateral lithotomy. It is obvious that the cases here alluded to cannot be of very frequent occurrence.*

The condition noted by Dr. Johnston has not, so far as I know, been recognised in surgical literature as a sequel of lithotomy. This gentleman's position and well-known ability stand guarantee for the accuracy of his observations regarding this acquired malformation—a state not to be confounded with that known to surgeons as the “bar at the end of the bladder.”

It has often been a source of unspeakable chagrin to able surgeons to have overlooked a stone when really situate in the bladder. In three of the above related cases this oversight seems to have occurred; in one of them (the third), on various occasions of consultation, the stone could not be found, even though searched for with the same sound which had previously identified its presence.

* Some years ago, having the good fortune to be so circumstanced as to have the opportunity to perform very numerous experimental operations for stone on the adult cadaver, any practical differences existing between the two forms of staff were freely tested. Though it did not really seem to me to be a matter of any very weighty importance whether the groove was on the dorsal or lateral aspect, yet in the case of adults in whom a large or medium-sized instrument can be used, the latter arrangement seemed to be much the more “handy.” With respect to children, a sufficient consecutive supply of material could not be obtained to enable me to form, as the result of practical trial, any definite conclusions. *But not improbably in persons of very tender years, and in those adults in whom the presence of stricture would necessitate the use of a small-sized staff, the dorsal groove might be found safer, and less likely to lead to complications during the performance of the operation.*

The finger, when introduced at the operation into the bladder, sought for, but could not find, any explanation of this circumstance; no depression or saccule, in which a stone could hide, seemed to be present.

The size of the concretion in the second patient, though but of moderate dimensions, if compared with the cases surgeons were wont to meet with in former days, when our rural brethren had not, as a rule, the diagnostic and operative skill which is now to be found so generally throughout the country, was yet of a magnitude (and, moreover, of a hardness of consistence), which makes it difficult to realise how a sound in the bladder could have failed to diagnosticate its presence; and yet the young man had been at one of the best English provincial hospitals, and was examined by a surgeon of deservedly well-known repute. P. B., too (Case No. 4), it was said, had been for a considerable time an inmate of one of the larger hospitals of this city, without his affection having been recognised; this case was, indeed, a most anxious one. Those who are familiar with the older medical periodical literature may bring to mind cases where the failures of distinguished surgeons of London hospitals to cut into the bladder, ultimately became, through the medium of public inquiry, the source of much professional scandal. I have myself known of cases, in the persons of children, where the operating surgeon failed to reach the bladder, the stone being, in one case, found in the displaced, though unopened, viscus after death, which was an early sequence of the operation. Sir H. Thompson does not exaggerate the peril of the patient in whom perforation of the urethra by the staff has happened, when he says, "If this error is made, and is not discovered in time, the operation fails to extract the stone, and almost invariably inflicts a fatal blow on the patient." In the anatomical investigations, previously alluded to, the parts were, as a rule, subsequent to the operative essay, carefully dissected. On some few of the occasions I was fortunate enough to secure for my observation *matériel* of tender years, and I was, therefore, not altogether unfamiliar with the feel and appearance—very different, indeed, from the tougher and more formed condition in the adult—of the deeper perineal regions in those of immature years. Happily, then, the fact of the deviation of the staff from its normal position was recognised in good time, and no further damage was done, by working at random, in the subsequent manipulations; the extreme weakness and friability of the tissues, and the feebleness of the adhesion of parts in this region, were kept

in mind, and the attempted re-insertion of the staff, and subsequent introduction of the catheter sound (probably successfully effected in part as a consequence of the different manipulation its lithotrite-like shape required, and in part from the somewhat bulbous probe end gliding over, not entering, the valvular opening in the urethra), were conducted with the utmost gentleness, the point of the instrument being kept as much as possible against the upper face of the canal. Another matter worthy of special notice was the difficulty of seizing and extracting the calculus, after the bladder had been fairly opened into, it is so very exceptional for difficulty to arise from this occurrence in children.

No. 5. *Case of Urethrotomy en gripe for Impacted Calculus.*—M. S. (No. 627), aged twelve years, was admitted to hospital Feb. 7th, 1870. Dr. Ryan, who met with the case in his extensive dispensary practice, diagnosing the presence of a stone in the bladder, had very kindly sent the patient to me. The lad's mother stated that six months previously he had passed a small kidney-bean-shaped calculus, which was porous and perforated; its evacuation was attended with great pain. The symptoms of foreign body in the bladder still continued unabated; a second small calculus was passed two days before admission to hospital; on being sounded, a stone was felt.

10th.—At morning visit a No. 7 sound was passed. Early in the afternoon an urgent message was sent, requiring my immediate attendance at the hospital. A couple of hours previously the patient had attempted to micturate; the stream suddenly became arrested, the lad expressing himself as conscious that the stoppage was due to the concretion having passed forwards and become impacted in the passage; in this belief he had struggled, but with only partial success, to force it on with the stream, and, though in a state of great torture, had, with view of preventing the recession of the stone, placed, and continued to keep, the tips of the fingers of each hand alternately pressed to the perineum behind the site of obstruction. The patient was of very spare habit, and the impacted body could be easily felt in the middle line, and under cover, as it were, of the root of the scrotum. Suitable posterior pressure still being kept up, it was essayed, but unsuccessfully, to pass down a long and slender urethral forceps; the little calculus was plainly to be felt by the finger, most favourably circumstanced for its immediate local removal. The patient was, therefore, turned over

athwart the bed, his feet resting on the side ledge. The integument being steadied, and with the scrotum drawn well forward by the fore and middle fingers of the left hand, an incision was made directly on the stone, and at once exposed it; the scoop-end of an ordinary director being then inserted alongside the little mass (which was circular, and about the size of a large pea) was easily prised out of its bed, and taken away. Urine gushed out almost synchronously, both by the cut and by the normal orifice of the urethra; but in a few moments, as the over-stretched integument returned to its normal bearing, made its exit nearly altogether by the natural passage, only a few drops dribbling through the cut. A No. 7 gum elastic catheter was passed, and secured, and an opiate enema given. On visiting the patient at night he was found to be quite comfortable, free from pain, and had slept, all the urine coming by the catheter.

11th.—The lad, feeling the catheter to be a "botheration," had withdrawn it himself early in the morning; since doing so he had urinated, all the fluid running by the penis, *not one drop by the cut*, which had contracted to a scarcely perceptible scratch, its edges being in the closest apposition; a little tenderness and puffiness surrounded its site.

14th.—The wound remains firmly healed. A No. 7 sound passed with negative result; patient feels as well as ever, and will not stop in bed; the following day he left the hospital.

This lad is to be congratulated on the easy terms on which he got rid of his lodger. The calculus was a large body to pass through the opening in the triangular ligament, and the site of its arrest was very unusual, in that it was not, as is customary, propelled by the stream of urine to the meatus. The mode of the closing of the little wound, *which, when the tissues had resumed their natural bed, was extremely oblique in its course*, is specially noteworthy. No extravasation occurred; no fistulous opening. The parts seemed to close by primary adhesion, and remained firmly and soundly united; slight local tenderness and puffiness for a day or two, and then the scar became scarcely discernible.

No. 6. *First Case of Lithotripsy.*—On the evening of New Year's Day, 1873, I saw in my study Mr. A., aged thirty-three, an extremely well-made and powerful blonde, who informed me that the presence of stone in his bladder had recently been ascertained in Liverpool, and that in the view of at once submitting to appropriate

treatment, he desired to know its size. Mr. A. stated also that he had been suffering for nearly a year, being much troubled by frequent desire to pass urine, associated with pain at the glans penis. These conditions were greatly aggravated when the patient's duties as a military man necessitated his being on horseback. On such occasions, especially if long in the saddle, the urine would often be bloody. The urethra was large and capacious, allowing a full-sized lithotrite, previously warmed and well oiled, to be easily introduced. The beak touched a stone, which, on the mandibles of the instrument being gently separated, fell at once into them. The calculus was of small size, the scale on the shaft of the lithotrite showing that the blades were but one-third of an inch apart. The patient, who obviously was no stranger to the procedure, earnestly inquired the size, exclaiming, "As you have it now, scrunch it right off;" and hurriedly gave me to understand that, on different former occasions, when the lithotrite had been introduced, the calculus had eluded it; and that his abode being in the immediate vicinity of my house, small, if any, risk would attend immediate action. A few turns of the wheel brought the blades home. The calculus giving but little resistance, was readily crushed, as was one fragment of some size. An opiate suppository was placed in the rectum, and the patient retired, having received necessary directions as to urination, &c.

2nd.—At an early hour Mr. A. walked into my study, saying that, in consequence of family matters, he could not have me, as arranged on the previous evening, go to his abode. He also stated that he had had a good night, and slept fairly, and that some sand and very small fragments were passed.

Though my erratic patient gave himself no "fair play," he soon experienced much relief. Sand and small fragments were passed for five or six days. Improvement was progressive, and ere long Mr. A. was able to discharge his mounted duties without any annoyance, and considered himself to be quite restored to health. The fragments showed the stone to be phosphatic.

During the past summer Mr. A. visited me relative to another matter, and I had, therefore, an opportunity of ascertaining the sequel of his case, which, he informed me, had proved in every way most satisfactory. Mr. A. was a native of, and had previously resided in, the County Kildare.

No. 7. *Second Case of Lithotripsy.*—In the autumn of 1873 the

Rev. Mr. D., of sandy complexion, and about forty-five years of age, an Englishman by birth, but who for many years had no fixed abode, called on me on a few occasions, complaining much of irritability of the bladder and pain at the end of the penis; the flow of urine also occasionally stopped. Mr. D. stated, as, indeed, his appearance fully bore out, that he had fallen into habits of frequent intemperance, and that, of late, occasions (by no means rare) of extra over-indulgence were apt to be followed by the urinary evacuations being more or less tinged with blood. Originally nervous and excitable, he had now become so to a marked degree. With much reluctance the introduction of a sound was submitted to. The stay of the instrument in the bladder was only momentary, but clearly determined the presence of a stone there.

Mr. D. would not submit to suitable operative treatment, and so for a time I lost sight of the case; however, towards the end of December last, he presented himself again, accompanied by his nephew, a medical man. The patient's appearance did not indicate any further loss of health, though he described his sufferings as greatly increased in the interim since he had last seen me. The irritability of the bladder had now become very great, the pain being most excessive during and for some minutes subsequent to the expulsion of the urine. Of late he was wont to micturate lying on either side, but with a decided "cant" *forward*, such position enabling him with least distress to expel the contents of the bladder.

The sample of urine he brought (about six ounces, the result of three efforts at evacuation) was muddy, with slimy deposit and excessively disagreeable smell—characters which it continued to retain during a considerable portion of the time he was under treatment. Mr. D.'s dread of instruments was so great that he would not allow himself to be again sounded; it was arranged that on the next occasion he should be examined, under the influence of an anæsthetic, and the stone crushed, if such a course were to be determined on. A preliminary treatment of rest and sedatives was followed out, the bowels being kept carefully regulated.

January 8th, 1874.—Mr. D. came rapidly, and without struggling, under the influence of chloroform, which was given by his nephew. The pelvis was suitably supported by pillows, as he lay on his ordinary bed. Standing on the right side thereof, I injected six ounces of tepid water, and then the lithotrite, which

had been warmed and well oiled, was gently introduced. A stone measuring, according to the scale on the stem of the instrument, rather over an inch, was soon caught. When the screw was worked, much opposition was experienced, so that, firmly supporting and steadyng the instrument with my left hand, I struck its mill-headed extremity a couple of sharp rapid taps with a suitable percussor, when the stone parted. The hardness, though considerable, was not so great as to necessitate the use of the stronger form of lithotrite (especially designed for the primary sitting in cases of large and hard calculi), worked by a rack and piaon movement, and where there is but one large fenestrum in the female blade, into which the powerful toothed beak of the male runs. Two large pieces were successively caught, and easily crushed by the screw action, and the instrument withdrawn; scarcely any detritus was attached to it. An anodyne enema was thrown up, and the patient, without becoming conscious after the chloroform, fell into a slumber, from which he started up in half an hour, requiring to micturate. This he did in the habitual recumbent and *partly prone* position, discharging into a "duck" quadruple the usual amount of fluid (the injected water had not previously came away), not quite so muddy coloured as usual. On decanting and straining the fluid, a very small quantity of detritus was found. During the day the patient partook freely of demulcents, an occasional opiate being given. There was frequent desire to pass water, a little sand and detritus sometimes coming with it.

9th.—Had a fair average night; some more detritus and a few small fragments passed. No tenderness of belly. During the ensuing four days an opiate suppository was given night and morning—the patient's condition improving—the pain decreasing, and the urination being less frequent. The periods of sleep were also longer. Save the opium suppository twice a day, Mr. D. objected to take any other medicinal treatment. The bowels not having been acted on since the crushing, a turpentine enema was thrown up, to which they responded freely.

13th.—*Second sitting.*—Used same lithotrite and in same manner; on this occasion, too, under chloroform. Four pieces of stone, of large size, were reduced; the same after-treatment followed out. The patient's state somewhat improving, larger quantities of detritus, as well as several fragmentary portions of various sizes—making in the aggregate a considerable bulk—were passed with the urine.

17th.—*Third and last sitting.*—As on the prior occasion, save

that no preliminary injection of water was practised, inasmuch as Mr. D. had been able to retain urine for four hours previous to this sitting, only one fragment of any size could be found; it was easily crushed.

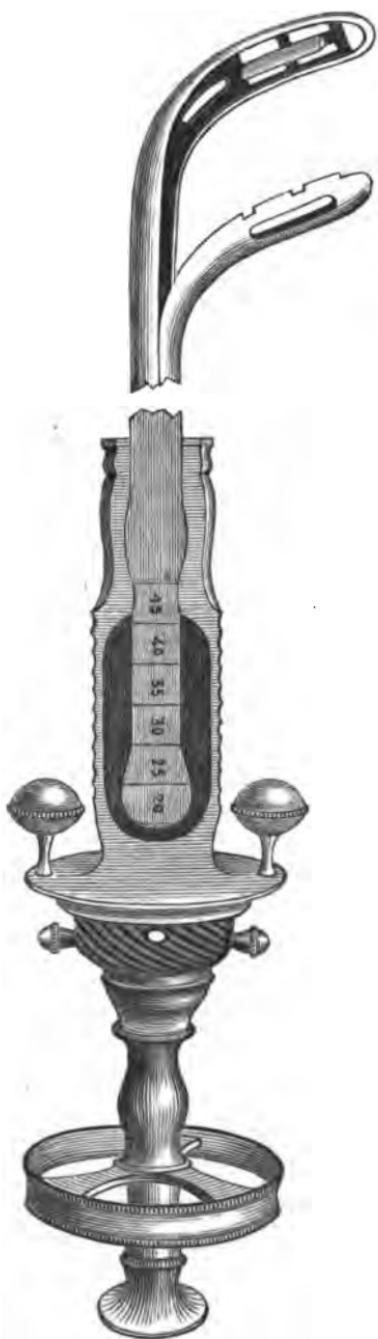
20th.—Since the last sitting, small quantities of detritus and a few fragments on the days after the crushing, but none at all for the last twenty-four hours. Mr. D. now considers himself to be practically well; he is called on to "pass water" only four or five times in the twenty-four hours, and sleeps well at night, the urine being normal in appearance and reaction. A most careful examination made, under chloroform, with the lithotrite, and no fragment whatever could be found.

In a few days more the Rev. Mr. D. was up and about, and with renewed vigour resumed his old courses. I have recently seen him, and understand that he continues quite free from any return of urinary trouble.

The size of the concretion in this case was considerable; when first grasped by the lithotrite, the scale of that instrument indicated that the separation of the blades was over an inch; some of the pieces broken at the second sitting measured one half and five-eighths of an inch as caught. The gross weight, however, of the stone could not be determined; the patient would not preserve the portions as passed, but emptied the "duck" after use into the common chamber receptacle, which was also used to receive expectoration, match ends, &c., so that only a fractional portion of the detritus and fragments could be secured.

The lithotrite used in both these cases was made, I believe, after the idea of that thoroughly practical surgeon, M. Gosselin, with the object of rendering impaction of fragments between the blades less liable than in the more ordinary unfenestrated flat beak. I had purchased it when in Paris several years ago, at which time such instruments were supplied in that city for less than half the price they could be obtained from good English makers. I had no hesitation regarding the trustworthiness of the instrument—the fabricant submitted it, in my presence, to the most crucial tests.

As will be seen by accompanying wood-cut [where the handle extremity is shown in face, and shut—the vesical, sideways and open], the beak of this lithotrite differs materially from that of the instruments in general use in this country; the female blade being perforated by six slots, which, when the blades are screwed home, are occupied by corresponding projections, or "teeth,"



attached to the male blade, in which is one large perforation, or slot, similarly occupied by a central projection, or "tooth," springing from the female blade, between the two pairs of oblong slots. When closed, the beak of the lithotrite presents a fairly smooth surface—none of the tooth-like processes projecting beyond their respective slots. The figures on the handle indicate millimetres.

In neither of these cases was the evacuating catheter used; in the first the stone was small and the *débris* got rid of easily without annoyance; in the second the patient had a profound dread of operative measures, and would not allow the introduction of any instrument except under chloroform.

Some months ago a surgeon of eminence and distinction in this city mentioned to me that he was interested in collecting materials to aid in the construction of tables having reference to "stone" in Ireland, and particularly as bearing on the question of the topography of the disease in this country. The desire to further my friend's views made me look up any memoranda I had of those cases which had been under my personal observation or care, a few particulars of which are here briefly summarised:—

No.	Period	Age	Residence	Treatment	Result
1	1867	50	Co. Mayo	Lateral Lithotomy	Cured
2	1868	11	Dublin	" "	"
3	1870	11	"	Extracted through Meatus	"
4	"	50	Co. Limerick	None	—
5	"	12	Dublin	Perineal Urethrotomy	"
6	1871	3½	"	Lateral Lithotomy	"
7	1872	29	"	Dilatation by use of instrument	Passed
8	"	60?	Co. Clare	None	Passed spontaneously
9	"	29	Wales	Use of instrument	Passed
10	1873	33	Co. Kildare	Lithotrity	Cured
11	"	4	Dublin	Lateral Lithotomy	"
12	"	30	Co. Limerick	Dilatation by use of instrument	Passed
13	1874	45	England	Lithotrity	Cured
14	"	32	Limerick	Use of instrument	Passed
15	"	—	Dublin	"	Still under treatment

The subject of the third entry on the above Table was brought to the hospital with retention of urine from stone impacted at the orifice of the urethra, which a slight division of the meatus enabled me to readily remove. The next case was a gentleman resident in the Co. Limerick, who was brought to me in the month of June, in the year indicated, by my friends, Messrs. J. Morgan and R. Griffith, both pupils of Mercer's Hospital, who, from the patient's symptoms, concluded that he had a stone in his bladder, which proved to be the case on sounding. He was a very timorous man, and, thoroughly frightened, to my great disappointment ran home on the diagnosis being verified. I subsequently heard that he was persuaded by his landlord, a person of title, to go to London, where, I believe, the stone was crushed. In the 8th case there was no room for local treatment either. It is inserted here as bearing on the question of locality of the disease. The subject; a clergyman of gouty family, himself of most strictly temperate habits and accustomed to take a good deal of exercise on foot, a somewhat stout man, with florid complexion and red hair, a native of the Co. Clare, but for many years a resident of Dublin. This gentleman came to me with reference to a calculus, about the size of the bean used for the purposes of the ballot, and which he had recently passed. The little stone was peculiarly dark-coloured; it was hard and extremely rough from spiculated projections; yet he was unaware of its passage till he heard it strike the chamber he was using. There had been no previous dyspeptic symptoms, nor until the stone was passed was there a suspicion of anything being amiss with his urinary organs. There has been no further manifestation of the trouble.

Three of the remaining cases (Nos. 7, 9, and 14) came into the hospital for treatment; the stones proved to be of small size, and were expelled, as a sequel to the instrumental examination instituted for diagnostic purposes—an event, as is well known, of no infrequent occurrence. The first of these, No. 7 (T. H., 1008), had no definite stricture, but the urethra was generally small; this passage was being gradually educated for the lithotrite by the regular introduction of catheters of increasing size. The day No. 11 was reached, the patient, when out in the yard, micturated the stone, which he lost in the grass.

The second, No. 9 (O. O. 1,158), was in the person of a *sailor*. He had also a bad attack of cystitis. About two hours after the first introduction of a full-sized sound he passed a small calculus,

which he gave me. The cystitis then rapidly ameliorated, and in little less than a week he was able to leave the hospital, to all appearance perfectly well.

The third, No. 14 (T. C. 1,516), had a very light small stone, which, when touched, seemed to elude the sound. After a single instrumental examination the patient passed the stone, and has since remained well. This man was a traveller, and had constantly to journey between Dublin and Limerick, the motion of the railway causing much agony for months previously to his getting rid of his lodger.

Case No. 12 (T. F., 1,447) was a female, for whom and for other cases of much surgical interest I have frequently been indebted to the kindly remembrances of Dr. M. J. Barry, now of Thurles, formerly himself a student of Mercer's Hospital. The patient, an unmarried woman, aged thirty, was admitted to hospital October 7th, 1873, affected with marked symptoms of vesical irritation. Repeated examinations, both by sound and lithotrite, occasionally practised under chloroform, failed for a long time to discover the presence of the foreign body. Uterine derangement co-existing, attention was directed to the condition of that viscus; also treatment being followed by some improvement; vesical examination being still occasionally practised, and early in November a small calculus was felt and measured by the instrument in use, a lithometer, which, however, was too feeble to remove it. During the repeated manipulations the urethra had been from time to time a good deal distended, and there is reason to believe the patient passed the stone immediately subsequent to this examination, as a marked improvement at once took place in her state. The calculus could not again be felt. Early in December Miss F. left the hospital.

The last case in the Table (No. 15) is at present in attendance at the hospital. Lithotritry had been performed elsewhere three years ago, and the case was believed by his surgeon to be cured. However, the man occasionally still passes small porous fragments of crushed calculus, sometimes accompanied by haematuria. He gets relief from treatment. The sound finds no concretion of any bulk. The introduction of a full-sized instrument is often followed in a few hours by a discharge of fragments and débris. Notwithstanding the reputed rarity of calculous affections in this country, the aggregate experience of our surgeons must be very considerable, and if they could be induced to send their cases to the "Journal,"

such would afford basis for the construction of a Report analogous to that compiled by the distinguished gentleman who made the subject of the topography of stone in Great Britain^a a principal theme of his admirable address at the last meeting of the British Medical Association.

ART. XV.—*Select Clinical Reports.* By J. MAGEE FINNY, M.D., Dubl.; F.K.Q.C.P.; Physician to the City of Dublin Hospital.

I.—ACUTE STHENIC PNEUMONIA, ENGAGING THE WHOLE OF THE LOWER LOBE OF THE LUNG IN A BOY TEN YEARS OLD; EXTREME PAROXYSMS OF DYSPNÆA; CRISIS ON EIGHTH DAY; RECOVERY.

II.—ACUTE STHENIC PNEUMONIA OF UPPER LOBE OF RIGHT LUNG; MENTAL DELUSIONS; DELIRIUM; CRISIS BY SWEATING ON EIGHTH DAY; RECOVERY.

III.—PNEUMONIA OF RIGHT LOWER LOBE, EXTENDING TO UPPER LOBES; PLEURITIS OF LEFT SIDE; APHONIA; DELIRIUM; COLLATERAL CEDEMA OF THE LUNGS; VENESECTION; DEATH.

IV.—PNEUMONIC ABSCESS OF THE LOWER LOBE OF RIGHT LUNG; CASEOUS CONSOLIDATION OF UPPER LOBE; HECTIC; TREATMENT BY COD-LIVER OIL; RECOVERY.

THE following cases present, I consider, some points of interest worthy of being recorded. They all, with the exception of Case I., occurred in the month of April—a fact worth noticing, as, in the June quarter of the present year, pneumonia was more than usually common in this city; “and the deaths from this disease were 55, against an average of 48 in the preceding ten years.”^b

CASE I.—*Acute Sthenic Pneumonia, engaging the whole of the lower lobe in a boy of ten years of age; Paroxysms of extreme dyspnæa; Crisis on eighth day; Recovery.*

Robert F., aged ten, was sent into the City of Dublin Hospital on the 27th March, 1874, as a case of fever, being five days ill.

^a Only a few Irish hospitals are alluded to, of some of which it is stated they furnished no cases (*vide Lancet*, vol. II., 1874), so that the question of the disease in this country may virtually be said to have been left untouched.

^b Report on Public Health. By J. W. Moore, M.D. *Irish Hosp. Gaz.*, Nov. 2, 1874.

On admission, his face was very much congested, the cheeks purplish-red, skin hot and dry; tongue dry, and covered with creamy fur; alæ nasi moving rapidly, with a short, catching respiration—60 in the minute. He had frequent cough, and when the cough came on in paroxysms, he became almost suffocated, as, gasping for breath, he would start up from the semi-recumbent posture, and throw himself towards his right side until the fit of coughing was over. The expectoration was reddish-yellow, very viscid, and frothy.

Physical examination elicited, on percussion, a flat, high-toned sound under the left clavicle, and dulness over the posterior part of the same side, extending from the base to the level of the third rib; while in the same region tubular breathing and bronchophony were exquisitely well marked. There was no crepitus audible anywhere, but over the front of the left side and the whole of the right side exaggerated respiratory sounds were observed.

The urine, which was free from albumen, was scanty, and gave, on standing, a copious deposit of lithates; the chlorides were not absent on admission, nor were they at any of the qualitative examinations which were made during the progress of the case.

The treatment consisted in keeping the side enveloped in a jacket poultice, and giving a mixture containing syrup. scillæ, vinum ipecac., and carb. ammoniæ.

March 28th.—The next day the fever was less in the morning, but the temperature rose to 104° in the evening, while the dyspnœa was unaffected. This state continued the following day also; but on 30th—the eighth day of his illness—defervescence set in, and the temperature fell from 104° on the morning of the seventh day to 98.5° on the evening of the ninth day; the pulse coming down, in the same time, from 132 in the minute to 84, and the respiration from 60 to 40.

With this change the general condition of the boy also rapidly improved; his aspect became natural; his tongue cleaned; his appetite increased; and he slept better. The lung, however, showed no signs of resolution until the thirteenth day of his illness, when over a small region near the inferior angle of the scapula crepitus was heard with inspiration alone; the day following it assumed the character of crepitus redux, being audible with both inspiration and expiration, and rapidly extended over the whole of the lower lobe. The improvement in the condition of the lung was, however, more judged by the percussion note than by the

stethoscope, as each day the sound approached that of health more and more. Resolution was completed on 10th April. During resolution it was noticeable that there was no expectoration at all. The patient left hospital a few days afterwards quite convalescent.

The treatment adopted in this case was simply expectant, no medicine being given except a stimulant expectorant at first, with $\frac{3}{4}$ iii. of wine in the 24 hours, and after crisis the citrate of quinine and iron.

Remarks.—The points which deserve a passing notice in this case are the occurrence of acute sthenic pneumonia in a boy of only ten years of age; that it engaged the whole of the lower lobe; the absence of any bronchitis, which, in children, more commonly precedes pneumonia, and the well-marked defervescence commencing on the seventh day and completed on the ninth.

The rapidity and shallowness of breathing was perhaps the symptom most marked, and at times became most distressing, as the poor child—judging from the gasping for breath, and the purple hue of his face—seemed on the brink of suffocation.

It is not my intention to enter at large into the question of the causation of such a symptom. I would, however, attribute its occurrence to the suddenness of the attack, the high febrile condition, the deranged innervation, and altered state of the blood produced thereby, rather than to the large extent of aerating surface which was engaged, or to any co-existent bronchitis.

CASE II.—*Acute Sthenic Pneumonia of the apex of right lung ; Mental delusions; Delirium; Crisis, by sweating, on the eighth day ; Recovery.*

William M., a labouring man, tall and well made, aged twenty-two, was sent into hospital under my care, by my friend, Dr. Chapman, on the evening of 21st April, 1874.

Eight days before admission he was taken ill, while at work, with severe rigors. He left his work and went home, feeling very cold, and shivered the whole day, nor could he get warm, "not even," as he expressed it, "if he could get behind the grate." The day before he came to hospital his mother noticed him to be "very queer" in many little ways, and in the evening to get out of bed, and kneel down at the door of his room; and when questioned as to his curious behaviour, he replied "he was going to heaven." He strongly objected to being brought to hospital. He was

admitted after seven o'clock, the hour of my usual evening visit, so I did not see him until the following morning, but the nurse and the patients in the ward reported that he spent a most restless and wakeful night; asking to be taken away, and saying that he could not dare to sleep; as he was under the delusion the nurses were determined to hurt him, and would beat him were he to close his eyes. On the 22nd, when I saw him at 9 a.m., he was sitting up in bed, imploring, with tears in his eyes, to be taken away anywhere from "them girls," and refusing, for fear of being poisoned, to take either food or medicine. His face was red and flushed, mostly on the malars; eyes bright, wild-looking, and watchful, with congested conjunctivæ; pupils not contracted. The corrugator supercilii muscles and those of the angle of the mouth were constantly twitching. He was very restless, and inclined to throw off the bed-clothes, and get out of bed. His breathing was quick, 40 in the minute, and there was a short hacking cough, accompanied occasionally by sputum of a red jelly-colour, and of a very viscid consistence; temperature 103·5°; tongue was thickly coated with yellowish-white fur; bowels confined. The history of the case, by which it appeared the man was of sober habits, along with the symptoms of thoracic engagement, directed attention to the lungs. The apex of the right lung, and down as low as to fourth rib anteriorly, was in a state of consolidation, as evidenced by dulness, well-marked increase of vocal fremitus, tubular whiffy respiration, bronchophony. Posteriorly, the dulness was not so marked, nor did it extend below the supra-spinous fossa.

As he had not slept for the last two nights, and was so very excited, I gave him a 20 gr. dose of chloral hydrate, with instructions to repeat the medicine if it should fail to quiet him. Half an hour after taking the draught he sprang out of bed, when the nurse's back was turned, and ran up stairs to the wards above—those of the female patients—asserting loudly that a wrong medicine had been given him, and that the nurse had tried to poison him. I happened not to have left hospital when this occurred. He was brought back to bed, after a little gentle persuasion, by one of our students, and 10 grains additional of chloral hydrate were administered. This had the effect of quieting him, and he was further re-assured by his mother sitting beside his bed. He now took beef-tea and wine, and became calmer, although he did not sleep. The only other treatment consisted of the constant application of large jacket poultices to the affected side.

In the evening he was much more composed, and promised to take any medicine I would order him. He had not slept all day. A mixture containing quinine in 5 grain doses was ordered, of which he took two doses before my visit next day. The poultice to the side was renewed, and shortly after he fell asleep, and slept well through the night.

April 23rd.—Aspect less wild, though still a little excited; no frowning or twitching of the face; is quiet, and no longer wants to go home. He is bathed in perspiration; the breathing is easier, respiration having fallen from 44 the night before to 32, and the *alæ nasi* are no longer moving. Pulse 84, softer; temperature 98·2°. Defervescence had evidently occurred, and that in the course of twelve hours, the temperature sinking from 103° to 98·2°. The tongue was still thickly covered with a yellowish-white coat.

Hepatisation of the upper lobe was absolute, as femoral dulness existed anteriorly to the third rib, and, in a less degree, to the fourth. Over this region no respiratory sounds were audible, but bronchophony was typical, and the sounds of the heart were conveyed most distinctly to the ear; there is no expectoration. As the bowels were confined, a mild purgative pill was given, but no attempt was made to act freely on them; the quinine mixture to be continued.

24th.—Diaphoresis has continued ever since, and is so great as to wet the sheets and pillow. Aspect is natural; patient slept well, and took beef-tea and medicines regularly. Two herpetic vesicles have appeared on the left side of his lower lip. There was no expectoration at the morning visit to-day, but in the evening the spitting-cup contained several frothy, viscid sputa. Resolution, as was thus evident, had commenced, and the diagnosis was further confirmed by the dulness being less absolute, and by its being limited inferiorly by the second rib; while bronchial respiration and a few râles on deep inspiration were audible in the same region.

The pulse continued to descend, and fell from 84, on the morning of the 23rd, to 68 in the evening, and to 60 this morning. The respiration has come down to 24 in the minute.

25th.—Perspiration still very great; resolution rapidly going on; only slight dulness is elicited by percussion to second rib, while air is entering freely, without crepitus or tubular breathing; there is almost no expectoration.

I now changed his medicine, and gave him 25m. doses of tinct. ferri perchloridi, three times a day, and wine ʒvi.

27th.—Much improved; appetite good; sleeps well; no cough. The lung has not quite cleared up, but no abnormal sounds are audible on auscultation. Pulse sank to 56 on 26th, and continues to-day at same rate. The pulse remained at this low rate till—

May 1st.—When the pulse rose to 72. A careful examination to-day, of right apex, freed my mind of all anxiety of any remains of the pneumonic process being left. Patient was allowed to go out in the air, and he left hospital on May 4th, quite well.

Remarks.—Authorities are now, more generally than formerly, agreed as to the clinical importance of an attack of pneumonic inflammation of the apex of the lungs. By many it was thought to be an indication of danger, not only because of the type of the disease being (as it very often is) adynamic, but also on account of the serious results which follow from it. By Grisolle^a it was held in peculiar distrust. He states that the mortality of pneumonia in patients under forty, so affected, as compared with the base of the lungs, was in the proportion of 5 to 3.

Sthenic pneumonia, it is known, much more commonly engages the lower lobes, and the inflammation of the apex, primarily, in adult life, is a comparatively rare occurrence. The case detailed above conforms, however, with the general rule, that pneumonia of the upper lobe is singularly more common in the right than the left lung, as shown by Grisolle, Ziemssen, Barth, and Briquet—the latter stating it to be in the proportion of 18 to 4.^b

The symptoms, for what reason we cannot well say, very often assume a serious type, and one quite out of proportion in its gravity to the extent of the tissues involved. Nevertheless, recovery of such cases by a normal and rapid defervescence is to be expected equally as in consolidation of the lower parts of the lungs. In saying this, of course, I except those subacute cases of the catarrhal type which run into caseation and phthisis, as well as those of the typhoid nature, where the inflammatory process creeps up from below, or simultaneously develops in the apex and other parts of one or both lungs. Pneumonia of the apex, writes Troussseau,^c in his "Clinical Lectures," is serious in tubercular subjects, but otherwise is not more dangerous than elsewhere.

^a Quoted by Dr. Wilson Fox. Reynolds' Syst. Med., Vol. iii., p. 690.

^b Ibid., p. 673.

^c Clinique Médicale, T. 1^{re}, p. 792.

Delirium is, not uncommonly, a symptom of pneumonia of the apex. According to Heintze, it occurred twice as often when the apex was engaged as contrasted with the lower lobe.^a And the same view is expressed by Flint.^b Huss, on the other hand, believes it is not especially common in such cases, but considers it to be rather due to the large extent of lung structure engaged, producing cerebral congestion—a view entertained by Sir Thomas Watson also. Niemeyer^c states it is due to either derangement of nutrition to the brain, or to the high temperature of the blood which flows through the brain; while Heintze contends that excessive temperature has little, if any, influence in its production. This view the case detailed might be taken to exemplify, as, except on one evening, the thermometer never marked more than 103·5°.

The significance of this symptom, which occurs, according to Grisolle, in 8 to 12 per cent. of all cases, will vary naturally with the time of its occurrence and with the type of the disease. Niemeyer^d asserts that delirium at the beginning of the disease is a matter of no gravity. I would, however, incline to the view taken by Flint, "that it is an evidence of the gravity of the disease in proportion as it is prominent and persistent."

Its character is, in like manner, liable to variations: though rarely violent, except in patients of dissipated habits (Grisolle), when it may assume the type of *delirium tremens*, it may occasionally appear in so sudden and severe a form as to be mistaken for acute mania.^e Hence it will be seen that delirium may present itself in any form, from being slight and incidental to the febrile movement, to the violence of mania—or to the typhomania of fever.

In the foregoing case delirium, at the time of, and for twenty-four hours after, admission—was the most prominent symptom. I made careful inquiries as to the patient's previous habits, but failed to satisfy myself that he was a man of intemperate habits, or that he had lately indulged in any debauch. I attribute it, therefore, to the deranged nutrition of the nerve centres, due to the febrile movement.

The want of prominence of cough, thoracic pain, and dyspnoea, might have easily misled one, at a cursory glance, to believe he had

^a Reynolds' Syst. Med., p. 638.

^b Practice of Medicine, p. 179.

^c Text Book of Practical Medicine, vol. I., p. 183.

^d Ibid., p. 183.

^e Reynolds' Syst. Med., p. 638.

a case of *delirium tremens* to deal with rather than pneumonia, and this view was, I understand, entertained by some of our students who saw the patient before my visit, and before any examination was made. It is, however, hardly credible in the present day that the sad picture of gross ignorance and negligence, drawn by Niemeyer, would be applicable, or any justification given for the following words:—"Many a patient has died in a strait-waistcoat, with a diagnosis of *delirium tremens*, whose real disease has been pneumonia."*

The disappearance of the delirium synchronously with the onset of defervescence, is in accord with what usually occurs, although, as Dr. Wilson Fox^b shows, it may continue forty-eight hours after crisis.

This mode of crisis, by sweating, I have never seen so well exemplified as in the case of William M. He was literally bathed in perspiration for three days, and on the second day presented a copious crop of sudamina, such as one finds in rheumatic fever. As a mode of recovery this is not uncommon, and Todd, in his Clinical Lectures,^c mentions a parallel case where marked improvement took place on the seventh day of the disease; "indeed," he writes, "there was something like a critical sweat," and "hence" (p. 297) "the treatment I employ in all cases of pneumonia is that which tends to promote sweating."

The depression of the pulse to 56 in the minute, on 26th April, and its continuance in this state for five days, was remarkable, not only as having occurred when no cardiac depressant medicine had been employed, but also in the absence of all symptoms of collapse—that condition so well known to be one of the great dangers of this disease. It reminded me much of the cardiac depression which occurs after crisis in typhus. This sinking of the pulse is noticed by Niemeyer,^d and it has been as low as 40 in the minute, although no digitalis or other sedatives were employed.

CASE III.—Pneumonia of right lower lobe, spreading to upper lobes; Pleuritis of left side; Aphony; Delirium; Collateral Edema; Venesection; Death.

James F., a stout, strongly-built young man, aged twenty-two, was sent into the fever wards, on the afternoon of 19th May, 1874, as a case of enteric fever with delirium.

* P. 176.

^b Reynolds' Syst. Med. p. 652.

• P. 306.

^c P. 174.

It appeared that a fortnight before admission he came into possession, through his father's death, of a public-house, and that ever since he had been drinking very freely, and had exposed himself, while in a state of intoxication, to cold and wet. On 13th inst. he was attacked with rigors, which, according to the account he gave me on the second day after admission (when the delirium had ceased), were very severe. On 14th he took opening medicine, which was followed by diarrhoea. This was then stopped by medicine, but while under treatment he used to get out of bed, and go out to drink. He became delirious on 18th, and the bowels were still free on his admission to hospital on 19th. When I saw him at the evening visit, he was lying propped up in bed, breathing noisily and rapidly. He was constantly changing his position, picking at the bed-clothes, and getting out of bed. He was, however, easily restrained, and, when questioned loudly, answered intelligently. His voice was reduced to a whisper. His face was greatly flushed, the ears and lips being purplish in colour; tongue was dry and brown in the middle, not cracked, while the sides were clean; the bowels had not moved since his admission; the abdomen was not much distended, nor was there either tenderness or gurgling on pressure, nor increased splenic dulness on percussion. No spots could be detected, though carefully looked for. Pulse 128, temperature 104°, and respiration 40 to the minute. There was complete aphonia. The throat was red and congested, but there was no false membrane visible.

Physical examination revealed consolidation of the lower lobe of the right lung--by dulness on percussion, which did not vary on change of posture, bronchial breathing, and the absence of vesicular sounds. There was no crepitus, and the loss of voice precluded the confirmation of the diagnosis by means of vocal vibration or bronchophony. There was no expectoration. He was extensively dry-cupped, front and back, and 10 grain doses of sulph. quiniae, in dil. sulph. acid, were administered three times during the evening and night, and ʒiv. of whiskey ordered for the night.

20th May.—Up to 3 a.m. he was very restless, did not sleep, and was frequently getting out of bed; after 3 a.m. he slept, and has been quiet since. His face is less flushed, and the pulse and temperature have both fallen, the former 16 beats in the minute, and the latter 1 degree. The condition of the lung is unaltered. To continue the quinine mixture, and to have the side enveloped in a jacket poultice.

21st.—Slept better; was quiet, and did not get out of bed; raved a good deal. The aspect is better, the ears and lips being less suffused, and his voice has returned. He answers questions intelligently, and is able to give a much clearer account of his illness than before. He coughs a good deal and strongly; sputum bloody and rusty. He complains of no pain in the chest. Although the temperature is the same as yesterday morning, the pulse has risen from 112 to 120; he passes less urine, and the skin is dry.

Physical examination shows pleuritic friction over the left side, while pneumonic crepitus is heard over the middle lobe and the posterior part of the upper lobe of the right lung. In both lungs fine mucous and muco-crepitant râles are heard over the upper lobes of both lungs in front, betraying a bronchitis, or, more probably, a serous effusion into the vesicles from collateral oedema.

In the evening his aspect was very much worse, lips, cheeks, and ears purple; eyes heavy, hands cold and purple; respiration very shallow with noisy expiration—48 in the minute; while the feebleness and rapidity of the pulse (130), as well as cardiac dulness to the right of the sternum, led me to fear that death by asphyxia, or by failure of the right side of the heart, was imminent.

In the hope—at best a very faint one—of relieving the overloaded heart, I bled him to 16 ounces. The blood at first was very dark, but afterwards changed to a more natural hue. Immediate relief was felt by the patient, and his aspect showed the same; and even while the blood was flowing his respiration was slower and deeper, and his lips lost their blue colour. Having given him some brandy, I left with orders to administer stimulants freely, and 15 m doses of ol. terebinth. every third hour. This I ordered with the object of clearing the tubes, as the stuffed condition of the apices of the lungs, while the greater part of the right lower lobes were consolidated in pneumonia and the left engaged in pleurisy, threatened suffocation only too plainly.

One dose of the turpentine was taken, when the temporary improvement, following on the venesection, passed away. He broke out into profuse perspiration, the breathing became more noisy, and he died at 10 30, four hours after I saw him.

No post-mortem examination could be obtained.

Remarks.—The foregoing case presents a sad contrast to Case II., having regard to the nature of the inflammation, the complications or the termination. From the first the prognosis was bad,

inasmuch as the nervous symptoms were those of a patient in advanced typhus fever, and the patient was one of the worst subjects to battle against so ataxic a type of disease.

So fatal and so common a termination is pneumonia to the life of a drunkard, that it has been designated as a special form, under the name of *Pneumonia Potatorum*, by Huss.

The aphonia, which was a symptom quite new to me, I consider to have been another evidence of great nervous depression; and the absence of all diphtheritic complication or other physical cause for its production, and its disappearance on the patient's second day in hospital, simultaneously with the signs of improvement in other respects, confirm me in this opinion. I am unaware if this symptom be one which has been met in pneumonia; but I have searched through many authorities—namely, Todd, Niemeyer, Aitken, "Reynolds' System of Medicine," Rousseau, Watson, Flint, and have failed to find any notice of such a complication—nor is it mentioned by Huss^a in his table of 29 complications in 959 patients.

In diagnosing the case to be one of pneumonia, rather than enteric fever with pneumonic complication—for as such it had been sent to hospital—I was unable to avail myself of the aid the thermometer would have given in the earlier stage of the disease, as has been pointed out by Dr. Grimshaw.^b I based my diagnosis on the history of severe rigors having occurred seven days before admission, and on the absence of the usual characteristics of enteric fever, such as splenic enlargement, ilio-cæcal gurgling, tympanites, and the typical eruption.

The improvement on the 20th, following upon large doses of quinine, was unfortunately but temporary, and was quickly followed by alarming symptoms of suffocation, due to collateral œdema. There is no symptom, according to Niemeyer,^c so fatal in the first and second stages as this; and it was in the hope of averting so dangerous a complication, and of relieving the overloaded and laboured heart, that I was led to perform venesection. The immediate benefit it produced, as evidenced by the patient's expressions of relief, the deeper inspirations, the diminution of the cyanotic aspect of the face, and the fulness of the pulse, made me for a

^a Reynolds' System of Medicine, p. 657.

^b Grimshaw—Thermometric Observations in Pneumonia, Dublin Quarterly Journal of Medical Science, May, 1869.

^c Loc. cit., p. 177.

moment hope that the relief thus obtained might be the forerunner of other improvements. I was, however, doomed to disappointment, as, in spite of the oil of turpentine (than which I know nothing better as an expectorant when the smaller tubes are stuffed with secretion), the patient's condition returned to what it was before the operation, and he sank in four hours.

Reflection in this case compels me to ask the question—might not the patient have recovered if venesection had been performed sooner?—and would it have prevented the serous effusion into the bronchi? While I would be far from advocating venesection indiscriminately in pneumonia as a curative means, I think it might be employed, with real advantage, more frequently than it is; for, as Niemeyer^a puts it, we may bleed, “not because of pneumonia, but in spite of pneumonia, and for fear of certain complications.” The rational use of such a powerful remedy is certainly hardly enough entertained at the present day; and the language of Dr. B. W. Richardson, within certain limits, is not a whit too strong when he says:—“Of this I am certain, that in giving up blood-letting as a means of cure, it sacrifices both skill and duty to ignorant prejudice and ignoble fear.”^b

CASE IV.—*Pneumonic Abscess of the lower lobe of right lung; Consolidation of upper lobe; Hectic; Treatment by cod-liver oil; Recovery.*

Margaret F., aged forty-five, a married woman, having several children, the youngest ten months old, was admitted on 14th April, 1874.

She had suffered from cough, profuse perspiration, and debility, for six weeks, becoming each day weaker and more emaciated; and yet up to the last week she continued to nurse her baby. She was so weak on admission as to be hardly able to walk up stairs to the ward, while the black circles round her eyes, the rapid movement of the alæ nasi, combined with her emaciated appearance, told too plainly of some great drain on the system, and the probability of extensive lung disease. This assumption, the pulse (140), the high temperature, amounting to 104·2°, and physical examination, further confirmed. The latter showed advanced disease in the right lung; for, from the angle of the scapula down to the base

^a P. 184.

^b Medical Times and Gazette, Oct. 3rd, 1874, p. 398.

there was comparative dulness on percussion, and slight tubular breathing, while anteriorly very little air entered the upper lobe, and at the nipple, crepitus, coarser than that of the first stage of pneumonia, and in character more resembling that of crepitus redux, was heard. On the left side there was compensatory respiration. It was only too evident that the lung tissue was breaking down. As she complained of diarrhoea and of profuse night sweats, I put her upon sulph. quiniæ and dilute sulphuric acid; the diet consisting of milk and lime water, beef-tea, and eight ounces of wine.

For the first week after admission there was little change in the symptoms, except that the bowels were checked, while the pulmonary mischief seemed on the increase, as coarse crackling râles were heard at the angle of the scapula; and the right clavicle became comparatively dull on percussion. Pain was now complained of under the right breast, and in this place pleuritic friction was discovered; the expectoration was more copious, and muco-purulent.

The temperature continued high, ranging from 100° to 103°, the evening temperature being usually higher by 2° than the morning. There was, however, no such regularity as one finds in the thermometric observations in enteric fever. The pulse ranged from 100 to 120, but with less difference between morning and evening. Respirations from 36–44.

As soon as the temperature came down to 101° in the evening, and the tongue (which, on admission, was clean, glazy, and dry, with extremely prominent papillæ) became at all moist, I put her upon cod-liver oil three times a day, followed by a sixth part of the following mixture:—

R.—Acidi phosphorici dil. m. 60.

Liq. strychniæ, m. 30.

Tinct. aurantii f 3 ss.

Aquæ flor. aurant. ad. f 3 vi.

M. ft. mistura.

The acid and strychnia prevented any sickness following the oil. Wine to 3 viii. was daily administered.

On May 1st, a fortnight after admission, the report showed improvement:—

"Aspect improved; the black circles round the eyes less marked; cough less; better nights, with much less perspiration about the head and chest; bowels regular; and expectoration less in quantity,

and that only in the morning; respiratory sounds more natural in affected side, 32 in the minute; pulse 90; temperature 98·2° in the morning, and 98·6° in the evening.

"The subclavicular dulness is less evident, and, though the lower is still dull, it is limited to an area of 1½-inch square at the inferior angle of the scapula, while the coarse, crackling râles, which were audible on inspiration in this place, have given way to a more clicking sound, conveying the impression that it was dry in character, and that the mucus was thick and scanty.

"To continue the cod oil in increased doses, and the acid mixture, substituting hydrochloric for phosphoric acid."

From this time to the end of May she steadily progressed, more solid food being given as her appetite improved, and as she was able to bear it; her appearance and general condition also improved, so that she gained flesh and strength, and looked ten years younger than when she sought admission.

She left hospital on June 6th, after a stay of seven weeks and a half, cured of the attack, although with an impaired and injured lung.

The following note was taken a day or two before she left:—

"Pulse 80; temperature normal; respirations 24; tongue clean; no nocturnal perspirations; appetite very good; no perceptible difference on percussion under clavicles; dulness at inferior angle of scapula, less evident and limited to an area corresponding to a five shilling piece; breath-sounds absent over this spot, normal elsewhere. The wine has been omitted and porter substituted the last ten days. The oil and acid mixture have been steadily persevered in."

Remarks.—No case came under my care, during my months of clinical duty in the hospital, which gave me more real pleasure and satisfaction than the foregoing. The prognosis on admission, and for many days after admission, was of the worst nature; it seemed quite hopeless to expect she could live more than a few weeks. The breaking down of the lung in the lower lobe, the extension of pneumonic process to the apex, the copious expectoration, the great exhaustion and emaciation, the profuse perspiration, and the diarrhoea, all combined, sufficed to make me expect a rapid and fatal termination. In this I was fortunately mistaken. Rest, good air, judicious and supporting diet, and, as soon as the stomach could bear it, the constant employment of cod-liver oil, did wonders in this case. The abscess diminished in size; its contents became less;

the extension of caseous inflammation was arrested; the diaphoresis was checked; sleep was procured; strength returned; and, when she left hospital, she had gained in flesh and weight.

This case is the more interesting, as it is just one of those cases which, some years ago, would have been set down as quite incurable, I might say necessarily so, as the result of the views which were then held respecting the nature of tubercle and its *deposition* in the lungs.

To Niemeyer and Dr. Williams is due the credit of plainly showing how many of such cases, by timely and judicious treatment, may be arrested in their progress to a fatal end, and how life may be prolonged in comparative strength and vigour for many years.

The employment of a mixture containing an acid and a vegetable tonic, with small doses of strychnia, immediately after the cod oil, I adopted from Dr. Williams, and I can bear my testimony to its efficacy in many similar cases in aiding the stomach to a tolerance of the oil.

To the tolerance and constant use of this oil I attribute very much of the success in this class of cases, and I can fully corroborate the statement of Dr. Williams,* that in order to obtain the greatest benefit from the cod oil, it should be persevered in regularly and for a sufficient length of time; for months, even for years.

I cannot close these remarks without gratefully acknowledging the help my clinical clerk, Mr. Robert Taafe, gave me in making accurate diurnal thermometric observations, and in seeing that the treatment adopted was carefully and rigidly carried out.

* Pulmonary Consumption, 1871. P. 345.

PART II. REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Complete System of Midwifery, including the Diseases of Pregnancy and the Puerperal State. By WILLIAM LEISHMAN, M.D. Glasgow: Maclehose. 1873. 8vo. Pp. 835.

THE author of this book is well known by his very able and excellent essay on the "Mechanism of Parturition," and he now aims at furnishing students and practitioners with "A Complete System of Midwifery of the Present Day." In the preface he apologises, as it were, for attempting so great a task, saying that of English text-books some of the very best have long been out of print; some are out of date; and others are mere hand-books in which the subject is, however ably, but cursorily treated. In our language, he goes on to say, scarcely a modern work exists which can be compared with those of Cazeau and Scanzoni; and while he does not, he says, presume to emulate those authors, he hopes the fruit of some earnest labour, but too scant leisure, may not be held unworthy of consideration. There are, he says, few modern works, British or foreign, with which he has not made himself familiar, and he has not scrupled to avail himself, from these sources, of what seemed to him to contribute to the elucidation of the subject; but to enable him to maintain the narrative form as far as the subject will admit, he has avoided statistical details, references, and illustrative cases as part of his original plan.

Proceeding on the plan thus indicated, Dr. Leishman has given us a very attractive and easily-read systematic treatise. Beginning with a sketch of the history of midwifery, he proceeds to describe the anatomy and physiology of the female organs of generation and of the foetus; then, passing to pregnancy, describes this condition and the principal diseases to which pregnant women are liable. Having thus prepared the way, he enters on the more immediate object of the work; and having described the different forms of labour, and the operations that may be required in its course, he concludes with a series of chapters on the management of the newly-born child, and on some of the diseases to which puerperal women are liable.

As might be anticipated from the established reputation of the

author, the chapters on the mechanism of labour are about the most interesting in the book. They are written with great clearness, and this subject, which is the greatest difficulty students have to encounter, is not only made interesting, but put so clearly and plainly that none should have any difficulty in fully understanding it in its most important bearings. With excellent judgment Dr. Leishman has avoided some doubtful and controverted points, not entering on their discussion in the body of the work, but reserving them for a chapter, devoted to themselves, which is placed at the end of the book as an appendix.

But that Dr. Leishman has produced "a complete system of midwifery of the present day" we cannot admit, or even a textbook fitted to supersede some of those at present in use. For one about to enter on the study of midwifery, and who wishes to get a general idea of the subject, we know of no book so well suited as this to give the required information in a form at once attractive and easily read. But easy reading, it is well known, is hard studying, and besides there is often a want of accuracy and fulness of detail calculated to mislead. The author seems to us to be carried on with his flowing narrative into statements that will not bear examination. Thus, when we read that the object of the cephalotribe is "to crush the unyielding base into a pulp, and thus bring it through the contracted diameters"—and then turn to the writings of some of those who have made themselves most familiar with the working of this instrument, and find its action described to be the flattening-in of the calvarium, and the canting of the base of the skull, so as to make it come down edgewise—we cannot say that the words quoted above give an accurate idea of cephalotripsy; so far from the base being crushed into a pulp, we believe it is seldom even fractured. We have never ourselves found it to be so, and Guyon has actually proposed to modify the operation so as to try to procure this result.

In describing the use of the forceps, Dr. Leishman describes the method he is himself in the habit of using in introducing the blades, but does not allude to any of the other methods in which the instrument can be used, some of which are, in our opinion, to be preferred to his; this, however, may be said to be a part of the plan of the book, but surely it is not a complete system of midwifery in which only one method of applying an instrument in such common use is described. He always introduces the lower blade first; in the Dublin hospitals, on the contrary, the upper is introduced first, for the very sufficient reason that, to introduce it easily and safely, it

is necessary to have the patient's hips well out over the edge of the bed during the first stage of the operation, and it is easy to place her so before it is commenced. We altogether deny the accuracy of the assertion that in using the instrument as the author describes the blades will not lock unless the upper blade be introduced in front of the lower. We admit that the upper blade ought always, when the author's method is adopted, to be introduced in front of the lower, and the facility of doing this with the forceps in common use is the only recommendation the method has, but the assertion is inaccurate, for the blades can be locked with great ease, under the circumstances stated, by a simple manœuvre—one that we ourselves and many others practice every time we use a forceps that has not Radford's reversed lock.

We regret exceedingly being obliged to find fault, in this way, with a book that we believe to be a good one, and calculated to do good service; nor if these were the only instances of inaccuracy would we have done so, but we believe the error runs through the book, and is almost necessarily attendant on the style in which it is written. One other fault, however, we must, in justice to the present state of medical science, point out. It has arisen, we are aware, from the author's following, without sufficient reflection, the very excellent model he had set before him, but we are sure Cazeau, if alive and bringing out a new edition of his book, would not have dwelt, at "the present day," on the difficulty of distinguishing dropsy of the amnion from ascites, or have stated that we must rely on the state of the urine, the œdema of the extremities, and the general fever and thirst for establishing the diagnosis. No surgeon of the present day would trust to these when he could at once say whether the dropsy were encysted or free by percussing over the surface of the abdomen. The real difficulty is to distinguish between an aggravated case of dropsy of the amnion, such as Dr. Leishman describes, and ovarian dropsy, but this is a point to which neither Cazeau nor he alludes. We have no doubt further editions of this work will be called for; and we venture to hope that papers such as Braxton Hicks' contribution to the pathology of puerperal eclampsia—the attempts of Heyerdahl, Pajot, and Tarnier, and others, to improve the operation of decapitation—M'Donnell's method of transfusion, and, in fact, the current literature of the present day—should receive notice more in accordance with their merits than they have in the present edition; and we would suggest a less wholesale condemnation of English text-books than that in the present preface.

Lectures on Bright's Disease; with especial reference to Pathology, Diagnosis, and Treatment. By GEORGE JOHNSON, M.D., F.R.S., &c., &c. London: Smith, Elder, & Co., 15, Waterloo-place. 1873. Pp. 152.

THIS handy volume, by a long-admitted authority on the subject of renal disease, is one calculated to be of great value to the practitioner who is not so much interested in the controversial topics of Bright's disease as in getting hold of a clear and concise account of the various forms and stages of the maladies which go by this name. The book contains seven lectures, reprinted with some changes and additions from the pages of the *British Medical Journal*. It is a book which would also be of great use to students—all unnecessary details, and, as much as possible, all doubtful and disputed points of pathology, being avoided. Indeed the contents originally formed the substance of lectures specially addressed to students, and are now dedicated to his past and present pupils by the author.

Étude sur la Septicémie Intestinale; accidents consécutives à l'absorption des matières septiques par la muqueuse de l'intestin. Par le DR. GASTON HUMBERT, ex-interne Lauréat des hôpitaux de Paris; Aide d'anatomie à la Faculté. Paris: J. B. Baillière et Fils. 1873. Pp. 104.

THIS essay is one upon a very important subject—that of self-poisoning, or what may be called autochthonous septicæmia. Substances, not originally hurtful, may by retention in the alimentary canal, and by the decomposition there so readily taking place, become poisonous and infect the system. The subject is clinically studied under two aspects—where the course of the intestine is free, and where it is obstructed. Typhoid fever is the type of the affections in which septicæmia occurs without retention of the secretions from obstruction. The author also points out how many of the peculiar constitutional effects, often produced by obstinate constipation, may be due to septicæmia arising from faecal absorption. The second class of cases consists of those in which the bowel is mechanically obstructed, as by hernia and internal strangulation; and Dr. Humbert suggests the tendency to this occurrence as an additional reason for prompt operation after failure of the taxis. A number of cases are adduced in illustration of his views.

Étude sur la Nature, l'Étiologie et le Traitement de la Fièvre Typhoïde. Par le Docteur COUSOT, Correspondent de l'Académie Royale de Médecine de Belgique. Bruxelles. 1874. Pp. 369.

THIS essay was addressed to the Royal Academy of Medicine of Belgium, in reference to the subject proposed at the Concours for 1870-1872—"To investigate the causes of typhoid fever, sporadic and epidemic; to indicate the prophylaxis and treatment of this disease," and was awarded the gold medal. It is a very exhaustive work, treating upon the whole subject; but excellent as it is as an epitome of our present knowledge, it does not seem to put us in possession of any information which cannot be found in standard English works, such as the last edition of Murchison.

Catalogue of the Library of the Surgeon-General's Office, United States Army. In Three Volumes. Volume I.—Authors, A—L; Volume II.—Authors, M—Z; Volume III.—Supplement. Washington: Government Printing Office. 1873 and 1874.

Magnum opus!—how large, may be gathered from the fact that the three volumes contain no fewer than 2,468 folio pages. The Catalogue, which is contained in the first two volumes, gives about 50,000 titles, exclusive of cross references, and relates to 25,000 volumes, besides 15,000 single pamphlets composing the library of the Surgeon-General's Office. The third, or supplement volume, contains lists of anonymous works, reports, transactions, and periodicals. An index of subjects, promised in the first volume, we fail to discover in the third volume. The manner in which this elaborate work has been brought out is worthy of all praise, and reflects great credit on Assistant-Surgeon J. S. Billings, who is in charge of the library, and on his able coadjutors.

Report on the Sanitary State of Kells. September, 1874. By RICHARD J. HALTON, L.K.Q.C.P.I., &c.; Medical Officer of Health. Pp. 8.

THIS report on the health of an Irish town would be interesting if it were only for its novelty. But Dr. Halton possesses claims of

his own to recognition as a painstaking, intelligent, and successful medical officer of health, although a town of only 3,000 inhabitants affords but a small field for labour in the cause of preventive medicine. It is a pity that the sentences in which Dr. Halton sums up cannot be brought home to the minds of the various sanitary authorities under the new Public Health Act. They are these:—

“To put the results in the simplest and most intelligible form, it may be stated, without reserve, that in the past three years there have been—excluding all possible causes of error—the lives of twenty persons saved, which persons would, in the absence of sanitary precautions and the consequent maintenance of the former rate of mortality, have now been inevitably numbered with the dead. Anyone may easily calculate the amount thus saved the local rates, when it is remembered that a certain number of those persons would be probably the fathers or breadwinners of families who would thus become destitute.

“These facts require no comment, and they should be of service in securing the hearty generous co-operation of the public in the working of the new Sanitary Act for Ireland, which, administered in a temperate and kindly spirit, is calculated to confer such blessings on the community.”

PART III. HALF-YEARLY REPORTS.

REPORT ON MEDICINE.*

By JAMES CUMING, M.A., M.D.; Professor of Theory and Practice of Medicine, Queen's College, Belfast; Physician of the Belfast General Hospital.

PERIPLEURAL ABSCESS.

BARTELS^b relates four cases of this rare affection, which has been previously described by Wunderlich, who had observed three cases, and by Billroth, who has met with two cases of it. In these instances a collection of pus was found to have been formed between the parietal pleura and the chest wall. The diagnosis between this affection and empyema is somewhat difficult. In both there are dilatation of the side, diminished or suppressed respiratory movements, dulness on percussion, absence of vocal fremitus, and diminished or suppressed respiratory sounds. The differences, however, are considerable. The peripleural abscess does not dilate the side uniformly, as empyema does, at least up to the time when the costal pleura has become perforated. By penetrating the structure of the intercostal muscles, the peripleural abscess widens some of the intercostal spaces very considerably, while others are narrowed. The upper limit of dulness is not, as in empyema, horizontal. An important diagnostic sign is the absence of signs of displacement of the neighbouring organs, which are invariably to be met with in cases of empyema, when the pressure has reached such a degree as to act distinctly outward on the ribs. In Bartel's three cases fluctuation could be perceived in an intercostal space, and the surface of the skin corresponding to the abscess became notably more tense during expiration and less so during inspiration.

The prognosis in this affection seems to be very unfavourable. Out of eight cases four were fatal, two recovered completely, and two imperfectly. Nothing is known regarding the cause of this

* The author of this Report, anxious that every contribution to Pathology and Practical Medicine should be noticed, will be glad to receive any publications on these subjects. If sent to correspondents of the Journal they will be forwarded.

^b Deutsches Archiv. für Klinische Medicin. March, 1874.

abscess. Albuminuria has been observed in several of the cases, and pericarditis, no doubt set up by extension of inflammation through the mediastinum, has been noticed in two cases. It is remarkable that there seems little tendency to perforation of the pleura and escape of pus into the pleural cavity, notwithstanding the fact that very considerable pressure existed on the ribs and intercostal spaces. The pleura, in the cases related by Bartels, was not perforated. The treatment recommended consists in opening the abscess by a free incision; and, should the pus become foetid, it is desirable to wash out the cavity thoroughly several times daily. Bartels has found a mixture of equal parts of ox-gall and water very effectual in such cases as a disinfectant.

THE INFLUENCE OF DIARRHŒA ON PERITONEAL ADHESIONS.

Traube^{*} makes an ingenious suggestion on this subject, founded on the examination of a patient who had been some time before death affected with general peritonitis, and in whom, after death, no adhesions or bands between the folds of intestine existed, although there was distinct evidence of false membrane on the parietal peritoneum. He attributes this unusual occurrence to the fact that the patient, for three months before death, had constantly suffered from diarrhoea. He believes that the constant peristaltic movements which take place, owing to the intestinal irritation and disturbance of the intestine, in consequence of its deranged function, prevent the formation of adhesions, and break those which may be formed. He, accordingly, questions the propriety of adhering to the operative treatment in simple peritonitis. The effect of keeping the intestine at rest is naturally to facilitate the formation of agglutination and adhesion, and in this way to lay the foundation of subsequent mischief. He is not convinced that the inflammation is increased by the peristaltic movements, and he regards the indication of preventing adhesion as of more practical and urgent moment. He, of course, makes an exception in favour of perforative peritonitis, in which the danger from peristaltic movement is obviously dependent on different considerations altogether. Accordingly, he suggests that peritonitis ought to be treated by aperients, especially such as calomel, which exercises a beneficial influence on the inflammatory condition.

He even proposes that efforts should be made, in cases of pleuritis,

* *Berliner Klinische Wochenschrift.* January and February, 1874.

to prevent adhesions, by inducing patients to take a series of deep inspirations, with the body bent forwards, and the arms extended, with the hands gasping some firm support.

ACUTE CONTAGIOUS DISEASES.

Gerhardt* has, under the title of contributions to the natural history of acute contagious diseases, grouped together a considerable number of facts of interest.

Regarding the variations in the length of the period of incubation in different febrile diseases, it is of interest to notice how constant it appears to be in some, while in others it is either variable or not yet accurately ascertained.

In measles, small-pox, varicella, rubeola, typhus, and mumps, the period of incubation is fourteen days.

In enteric fever, two and a half to three or four weeks, the mean being three weeks.

Scarlet fever, five to seven days.

Syphilis, four to six weeks.

There is a curious relation to the period of a week in these instances, all being either multiples of, or bearing some simple proportion to, a week.

Certain causes may induce variation in the duration of the incubation period; among these is external temperature. Vaccinia develops more rapidly in summer; the small-pox vesicle appears earlier in parts which are exposed to heat. The mode in which the contagion is received into the organism also has an effect on the duration of the period of incubation. Inoculated small-pox is found to have a shorter incubation than the disease when received by contagion through the air-passages. An instance is recorded in which the contagion of scarlet fever seems to have been conveyed by the knife of a surgeon, and in which the disease followed after an incubation of four days.

It seems likely that the administration of medicines may influence the duration of incubation, as is observed in syphilis, in which mercury certainly produces a distinct effect of this kind. It is unlikely that incubation is affected by the quantity of virus, but it is probable that the particular step of development in which the virus is may produce an effect.

Gerhardt believes that instances are known of relapse in every

* Deutsches Archiv. für Klinische Medicin. Sept., 1873. •

form of acute contagious disease. In typhus relapses are infinitely rare; still one case, observed by Buchanan, has been recorded by Murchison, and another has been put on record by Ebstein. Ten cases of relapse in scarlet fever have been recorded by different writers, the relapses having, in the majority of the cases, occurred in the course of the third week. In measles, rubeola, and small-pox, relapses have been observed. Gerhardt observed recently a genuine relapse in a case of mumps.

TREATMENT OF AMMONIACAL URINE.

Some observations have been made by MM. Gosselin and Albert Robin* on the action of benzoic acid in the treatment of cases of cystitis with an ammoniacal condition of urine. It has always been a difficult problem to restore the acidity of urine, while it is so easy to render it alkaline. Free carbonic acid, tannic acid, which appears in the urine as gallic acid, and gallic acid itself, have been tried, and a number of trials have been made with benzoic acid, which, as is known, becomes changed in its passage through the system, so that it appears as hippuric acid in the urine—a fact pointed out originally by Wöhler. It has been stated by Dessaaignes that this transformation is brought about by benzoic acid becoming combined with glycocoll or some analogous nitrogenous substance in its passage through the economy. Benzoic acid can be taken in quantities of from thirty to ninety grains daily, without any injurious effect being produced. After prolonged use of the remedy, however, heat and dryness of the throat were observed. It can be administered suspended in water by the aid of mucilage, or in lemonade with a little tincture of canella. Fifteen grains is enough to begin with. The balsams, which contain benzoic acid, and probably also salicine, cinnamic acid, and other vegetable substances, have a similar effect.

The hippuric acid, which appears in the urine as a result of the administration of benzoic acid, is in combination with ammonia as hippurate of ammonia, and is much less hurtful to the bladder and to the system than the carbonate of ammonia, which it replaces. The hippuric acid retards the decomposition of the urine, and consequently the production of carbonate of ammonia. It also tends to prevent the formation of insoluble phosphatic deposits, which are a cause of cystitis, and lead to the formation of urinary

* Archives Générales de Médecine. Nov., 1874.

calculi. A means of this kind for producing an acid, or diminishing an alkaline, condition of the urine is valuable in all cases of purulent cystitis with ammoniacal urine, but especially so in those who are about to undergo operations in the neighbourhood of the urinary passages.

EFFECTS OF SEA AND MOUNTAIN AIR.

Professor Beneke,^a of Marburg, has made a curious observation on the comparative influence of sea and mountain air on the system. He believes that he has ascertained experimentally that bodies part with their heat much more rapidly on the sea-coast than on mountain heights. This explains why it is that metamorphosis proceeds more rapidly at the sea-side than elsewhere, and that an increased amount of urea and a diminished quantity of uric acid and earthy phosphates are met with in the urine. The increased abstraction of caloric makes an increased production necessary, and accordingly leads to greater rapidity of metamorphosis. If these observations are verified, Beneke points out that we will have a much more definite indication for the recommendation of particular climatic changes. As the increased metamorphosis depends, *ceteris paribus*, on the rapidity with which heat is abstracted from the body, it follows that, in mountain air, the processes of change will be less considerable than at the sea-side. Accordingly, irritable, nervous, excitable people, will find themselves better in mountain air; on the other hand, scrofulous subjects, and persons with good digestive organs, who have been over-worked, will derive greater benefit from a sojourn at the sea-side. The diminished atmospheric pressure at considerable elevations is also of importance, both by rendering bodily movements easier, and by increasing the activity of the respiratory movements.

In making his observations, Beneke was careful to exclude every source of error, such as might be caused by difference of temperature, moisture, and winds, and he can only refer the remarkable differences which he has observed to the diminished density of mountain air making it a worse conductor of heat.

ON HOT BATHS.

Professor Lasegue^b contributes a paper of interest, on the subject of hot baths, to the "Archives Générales." He attaches great

^a Deutsches Archiv. für Klinische Medicin. March, 1874.

^b Archives Générales de Medicina. November, 1874.

importance to the temperature of the bath being kept up while the patient is in it. In a metal bath the water at 103° will lose in a quarter of an hour between three and four degrees, an amount which is very considerable. By keeping up the temperature, Lasegue has been able to give baths to patients affected with cardiac disease, in many instances, with considerable advantage. Souplet has recommended hot baths in phthisical cases, and when the temperature is carefully kept up, a distinctly sedative effect has been observed; while, if the water has cooled, a sense of depression is experienced. It is of advantage to raise gradually the temperature of the bath while the patient is in it. Lasegue believes that a bath of which the initial temperature is 97° or 98°, gradually raised to 104°, so that the patient remains in the maximal temperature for five minutes, is, therapeutically, as efficacious as a bath in which the patient is subjected to the maximal temperature for the entire time.

The following practical rules have been suggested by Lasegue:—

No hot bath ought to exceed twenty or thirty minutes in duration.

The initial temperature ought always to be lower than the final temperature.

The increase of temperature ought always to be gradual.

The maximal temperature is usually 103°, but 108° can be easily tolerated if the patient does not remain in this temperature longer than eight to ten minutes, and that the unpleasant sensation produced by the vapour on the part of the body which is not immersed is avoided. On leaving the bath the patient goes to bed, and soon loses the sensation of unusual heat. Cold douches, which are so agreeable after hot air baths, are not well borne after hot baths.

Lasegue has found a prolonged course of hot baths very useful in chronic rheumatic arthritis. Under their influence the movements of the articulations have become less difficult and painful. A similar mode of treatment has been found useful in chronic abdominal complaints, such as protracted diarrhoea, and even in obstinate chronic bronchitis.

SUPPRESSION OF THE CUTANEOUS CIRCULATION.

This subject has been experimentally investigated by Dr. Feinberg.* The cause of death in animals who have been coated with

* *Virchow's Archiv.*, Bd. 49, S. 270.

an impermeable varnish has been the subject of considerable doubt. It has been usually accepted that death occurs through retention in the system of excrementitious substances, which are normally got rid of through the skin. Laschkensitz, from a series of experiments, came to the conclusion that lowering of temperature was the effective cause of death in animals whose skin had been varnished. The late observations of Lange pointed to the conclusion that the fatal effect was to be attributed to hyperæmia of the kidneys and obstruction of the tubuli uriniferi, induced by the efforts of the kidney to get rid of the excessive amount of liquid in the circulation, and leading to uræmic poisoning.

Feinberg's conclusions are different from those of previous observers. During life he noticed that in the animals experimented on there were observed :—

Increased sensibility of the skin, varying in duration, and in some instances making way for anaesthesia before death.

Increased reflex excitability, so that touching or pinching the skin, or even shaking the floor on which the animal lay, brought about protracted convulsions.

Tremor, which was an early symptom, and which frequently continued till the death of the animal. The animals exhibited defective motor power, partly, no doubt, from mechanical impediments to their motion, but partly from effusion of blood having taken place in the spinal cord and in the muscles. Convulsions were present in almost every instance, most frequently of a tetanic character. Rotation movements were observed in three cases. Incomplete paralysis, generally of the hinder limbs; paralysis of the bladder. Respiration decreased in frequency; heart's action progressively weaker. Temperature falls rapidly when the animals are not covered with some non-conducting substance. When they are carefully wrapped up, the temperature often rises above the normal for a time, but sinks before death, either slowly or rapidly.

After death the following pathological conditions are observed :— Dilatation of all the subcutaneous vessels. Great dilatation of the pulmonary capillaries, frequently sub-pleural extravasation. The cavities of the heart distended with blood, and sometimes effusion of blood into the muscular substance of the heart. Great dilatation of the branches of the portal vein and of the central veins, with occasionally haemorrhage into the substance of the liver. Haemorrhage into the mucous membrane of the stomach. Congestion of the peritoneal capillaries, and catarrh of the intestine. Catarrh of

the bladder. The peripheral nerves and the voluntary muscles exhibiting dilated capillaries, and frequently extravasation of blood. Kidneys congested, and exhibiting either incipient or developed parenchymatous inflammation. The meninges congested; the grey substance of the spinal cord dark-red, and exhibiting little extravasations visible to the naked eye, the congestion being especially visible in the cervical portion. Microscopic examination shows dilated capillaries, numerous capillary haemorrhages, with sometimes laceration of the substance of the cord.

The dilated state of the vessels observed in the examinations made by Feinberg can depend only on a paralytic condition of the vaso-motor centre. When this takes place, the vessels are dilated, the arterial pressure is diminished, the heart acts less strongly, the blood moves more slowly, and, finally, the cardiac movements cease. The cause of the vaso-motor paralysis is to be sought for in the profound irritation of the sensory nerves, induced by varnishing the surface of the body, bringing about a paralysis of the vaso-motor centre. The congested condition of the cord may be secondary to this, as Feinberg believes, or may be directly induced by the irritation of the sensory nerves. The fact that the vaso-motor nerves may be excited by impressions conveyed by the sensory nerves has been long known, and it seems to be a question of amount and degree of sensory impression whether the reflex effect shall be irritation or paralysis.

INTUSSUSCEPTION.

The subject of intussusception of the intestine has been carefully studied by Dr. Leichtenstein,* of Tübingen, who has contributed an elaborate monograph on the subject, based on the records of 593 cases.

An analysis of these cases gives the relative frequency of intussusception in males and females as 1·8 to 1. It is found to occur with greatest frequency in the first year of life, and with especial frequency between the fourth and sixth months inclusive.

Leichtenstein proposes a convenient modification of the nomenclature of one of the forms of invagination. He suggests that the term ileo-cæcal be restricted to those cases in which the lower end of the intussusception is constituted by the ileo-cæcal valve, and that the variety in which an intussusception of the small intestine

* *Prager Vierteljahrsschrift.* Bd. 119, 120, 121.

descends into the colon through the ileo-cæcal valve be called ileo-colic.

The seat of the intussusception has been ascertained in 479 cases, the relative frequency of the different forms being—ileo-cæcal, 44; ileum, 30; colon, 18; ileo-colic, 8.

As regards the length of the invaginated portion of the intestine in the different forms, an examination of the statistics has led to a different conclusion from that generally adopted. The ileo-cæcal variety is that which has been hitherto regarded as the variety in which the greatest length of intestine was implicated. It is in invagination of the ileum that Leichtenstein regards the greatest length of intestine as implicated.

Leichtenstein believes, in opposition to the opinion expressed by Brinton, that undoubted cases of ascending intussusception have been observed.

The following Table gives the results of inquiry into the etiology of the affection in 593 cases:—

Intestinal polypi, 30;	cancer and stricture of intestine, 6;	diarrhoea, 21;
various intestinal derangements, 25;	indigestible substances ingested, 28;	contusions of abdomen, 14;
muscular exertion and causes leading to, 12;	pregnancy and child-birth, 7;	cold, 6;
after acute or chronic diseases, or other conditions which had apparently no direct influence, 66;	occurring suddenly in previously healthy persons, 111;	cases in which antecedent conditions were unknown, 267.

The points to be relied on as affording assistance in establishing the diagnosis are as follow:—

In childhood, intussusception of the small intestine is very rare.

In adults, intussusception of the ileum is attended with more rapid and severe symptoms than when it affects the colon, or when it is ileo-cæcal. Chronic cases of invagination of the small intestine are rare. Sudden invasion is the rule in all forms of intussusception. The ileo-colic form more frequently begins slowly than any of the other forms. Collapse is more frequently found at an early period of the affection in invagination of the ileum.

Muco-sanguineous discharges occur, as a rule, in all forms of intussusception. Normal evacuations sometimes occur in the ileo-cæcal variety, and only in adults.

Meteorism is very variable, and sometimes absent.

Tenesmus occurs rarely in invagination of the small intestine, but is frequent when the colon or cæcum is involved.

Paralysis of the sphincter ani is noticed only when ileo-cæcal invagination descends low, or in intussusception of the colon.

If a tumour can be recognised in the middle of the hypogastrium, the invagination is probably of the ileum. If it is found to be stationary in the cæcal region for some time, it is probably either of the ileum or ileo-colic. If it advances along the course of the colon, it is probably ileo-cæcal, may be invagination of the colon, and certainly is not formed by the ileum. If the tumour is situated in the left side of the abdomen, it is probably ileo-cæcal, or formed by the colon. If it can be felt in the rectum, or if it protrude through the anus, it is not formed by invagination of the ileum. A highly interesting case, in a diagnostic sense, of intussusception of the upper portion of the small intestine, has been recorded by Dr. Peacock* in a late volume of the "Pathological Transactions." A young lady, who had been liable to sudden attacks of pain and sickness, without any assignable cause—the attacks coming on suddenly and suddenly ceasing—was seized with severe pain in the abdomen, and urgent vomiting, which lasted, without intermission, for two days and nights, notwithstanding treatment. The symptoms then ceased, and she was comfortable for thirty-six hours, when the symptoms recurred, and she died three days after. During the last periods of her life, and while she was suffering from the urgent symptoms, the bowels acted regularly, and there was never any decided constipation. An intussusception of the upper part of the jejunum was found, of about six inches in length, in a state of intense inflammation, and gangrenous at its free extremity.

The prognosis in intussusception is modified considerably by age. The mortality is greatest in the first year of life; least in middle life.

The cases in which the intussuscepted portion of intestine sloughs off and is expelled exhibit a proportion of recoveries twice as great as the cases in which this event does not occur; so that sloughing of the intestine is the most frequent and safest mode of recovery from intussusception. The intussuscepted intestine is very rarely detached in infancy. It is most frequently found to take place in invagination of the ileum; accordingly, the prognosis is relatively better in this than in other forms of the disease. If sloughing of the intestine do not occur, the prognosis is better in cases of ileo-cæcal invagination, and in invagination of the colon.

* *Transactions of the Pathological Society of London.* 1873. P. 108.

The statistics collected by Leichtenstein show that out of 593 cases, separation of the intussuscepted part took place in 170. Of these 88 recovered completely, 61 terminated in death, and in 21 the issue was unknown. The expulsion of the intussusception occurs most frequently between the 11th and the 21st day from the beginning of the disease. Out of 408 cases in which no separation of the invaginated portion occurred, recovery took place in 63 cases.

As far as therapeutic measures are concerned, Leichtenstein does not attach great importance to the sound or the injection of either fluids or air in one form of intussusception. He does not believe that any authenticated instance exists in which intussusception of the small intestine was removed by either fluids or air, so that the employment of these methods may be restricted to cases in which the lower part of the intestine is involved. Kneading of the abdomen, both before and after injection of water or air, has been tried, and violent shaking of the body has also been tried. The employment of gaseous or fluid injections, with the body inverted, is reported to have been followed sometimes by favourable results; the free administration of opium, both as tending to bring about spontaneous reduction of the intussusception, and as an adjuvant to other measures.

On the subject of operative interference, gastrotomy has been advocated by several observers of deservedly great weight. The statistics, although unfavourable, are by no means altogether discouraging. Out of ten operations recorded, four recoveries have taken place. Certainly the brilliant success of Spencer Wells and others in ovariotomy has robbed the opening of the peritoneum of some of its terrors, and given reason to hope that the same rigorous exclusion of noxious influences, and care in operative procedure and in subsequent management, may lead to results more favourable than have as yet been attained. The following observations by Dr. Samuel Whitall,* of New York, are, if a little sanguine, deserving of careful consideration:—

"The term *gastrotomy* is an unfortunate one. It would be far better to restrict it, as most German authors do, to the operation of opening the stomach, and to use the more correct term *laparotomy* for simple abdominal section. The term *gastrotomy* (or *laparotomy*), in its present connexion, is applied to a large incision made through the abdominal walls for the purpose of searching for, and, if possible, of relieving internal intestinal obstruction.

* *New York Medical Journal*, August, 1873.

"If, after laying open the abdominal cavity, the operator should open the intestine, whether he intend to sew it up again and return it into the peritoneal cavity, or to establish an artificial anus, the operation receives the name of *gastro-enterotomy*.

"*Enterotomy* is applied to the operation which has for its object the establishment of an artificial anus, whatever may be the process employed, or the seat of the operation.—(Delaporte.)

"It is not the intention of the writer to discuss, at present, the comparative merits of these different methods. The choice between them is subordinate to the indications of the malady, as Larguier truly remarks, and to fully consider these indications would lead me beyond my bounds. I will confine myself to a simple statement of what I believe to be the particular merits of gastrotomy, based upon a study of the cases I have collected, and upon the views of others who have written upon the subject. What, then, can be accomplished by the operation? This is an important question, to which statistics give an encouraging reply:—

"1. The restoration of the patient to perfect health by the complete removal of the obstruction, without opening the intestinal canal.

"2. In cases of intramural occlusion it enables the operator to discover its exact locality, and, after having removed the obstacle, he can sew up the bowel and return it into the abdominal cavity, or establish an artificial anus, as circumstances require.

"3. Should the seat of the obstruction not be discovered, it enables the surgeon to form an artificial anus as near as possible to the affected point, in the hope that, the intestinal tension being thus relieved, the passage would become clear, and the artificial opening subsequently close. This result is illustrated in Manlove's case (previously referred to), also in two interesting cases of Troussseau's ("Clinical Medicine," American edition, vol. iv., p. 220) upon which Nélaton performed enterotomy. The patients all recovered, and in each case the artificial anus closed spontaneously.

"4. The seat of the obstruction being recognized, but found to be insuperable, it enables the operator, by the formation of an artificial anus, greatly to relieve the patient's sufferings, in mitigating the pangs of unavoidable death.

"These remarks are not intended to apply to those cases of chronic closure of the bowel, the nature and seat of which can be well ascertained, and for the relief of which lumbar colotomy, as already stated, is the only remedy."

ASCENDING AND DESCENDING BREATHING.

The causation of the peculiar kind of respiration with which the names of Cheyne and Stokes are inseparably associated, has been

the subject of some discussion in Germany during the present year. No explanation of the nature of the phenomenon has been offered, so far as we are aware, by Stokes, who, as is well known, first observed it in connexion with fatty heart, and referred its production to a weakened state of the left ventricle.

Walshe suggests that its proximate cause lies in a failure of the special nervous excitant of the respiratory act—in anaesthesia, either of the vagus or of the medulla oblongata, dependent on the diminished and sluggish blood-current propelled by the languidly acting heart. But this is plainly not an adequate explanation, as it leaves out of account altogether the rhythmic character of the breathing.

Dr. Little* brought forward an explanation of the phenomenon in question, based on the supposition that in these cases the left ventricle of the heart acts inadequately, and that oxygenated blood collects in the pulmonary veins and in the left auricle; that in consequence of the blood having already absorbed as much oxygen as is required to aerate it, it no longer furnishes the impression on the ultimate fibres of the pneumogastric, which, when transmitted to the nervous centre, brings about respiration. Then, as the left ventricle continues to get rid of an additional quantity of red blood by throwing it into the systemic arteries, venous blood can be transmitted to the lungs, and so excites the respiratory act, at first imperfectly, but subsequently more fully and rapidly, till the same process begins over again.

It is evident that this theory, though very ingenious, and sufficient to explain a considerable number of cases, would be altogether inadequate to afford a solution of any case in which there existed no embarrassment to the ventricular contraction or to the systemic circulation.

It appears to be now well ascertained that, although most frequently met with in connexion with fatty heart, and though, probably, the most perfect examples of it are to be found in cases of this disease, yet, ascending and descending breathing occasionally occurs in other cardiac affections unconnected with fatty degeneration, and occasionally also in cases in which the heart is altogether free from disease. Thus it has been observed in tubercular meningitis, in tumours of the brain, in uræmic coma, and it has been experimentally induced in dogs by injecting chloral into the

* Dublin Quarterly Journal of Medical Science, Vol. XLVI., p. 46.

veins. Many of the recorded instances,^a it must be acknowledged, present but an incomplete resemblance to the classical picture with which Stokes has made us familiar; but others are clearly genuine examples of the phenomenon in question. The explanation offered by Traube of the way in which it is produced has been pretty generally adopted in Germany; but as it has been recently in some degree modified by its accomplished author, we may postpone our account of it till we have noticed the theory of Filehne,^b which led to a fresh discussion of the subject by Traube.^c In order to comprehend the discussion, it is necessary to bear in mind that the nervous centre presiding over inspiration, and seated in the medulla oblongata, finds the appropriate stimulus to its activity in the carbonic acid contained in the blood. Traube had advanced the theory that the essential element in the causation of the phenomenon in question is a diminished excitability of the respiratory centre, which makes it necessary that a larger amount of carbonic acid must be present in the blood to enable its function to be called into action than is necessary with a perfectly normal state of the nervous centre. Filehne, in a paper read before the Medical Society of Berlin, while admitting this state of nervous excitability of the respiratory centre, holds that this alone is not sufficient, and that in addition the excitability of the respiratory centre must be lower than that of the vaso-motor centre, that is, of that portion of the nervous system which presides over the innervation of the vessels and the excitation of which causes contraction of the smaller arteries. In the normal state of the system the opposite of this is the case. An increased venosity of the blood or a diminished vascular supply first acts on the respiratory centre, and it is only when one or both of these conditions have become more marked that the vaso-motor centre becomes stimulated. When, then, during the period of apnoea, carbonic acid accumulates in the blood, it produces no effect on the respiratory function, even when in much greater quantity than would be necessary to call the respiratory muscles into active exertion in the normal state. On the other hand, the smaller arteries become contracted by means of the vaso-motor centre, and a diminished supply of blood is sent

^a For example, two cases by Roth. *Deutsches Archiv.* July, 1872.

^b Das Cheyne-Stokes'sche Atmungs-phenomenon. *Berliner Klinische Wochenschrift*, 1874. Nos. 13-14 and 33-35.

^c Zur Theorie des Cheyne-Stokes'schen Atmungs-phenomenon. *Ib.*, Nos. 16 and 18. 1874.

to the respiratory apparatus. The conditions then necessary for the stimulation of the respiratory centre go on increasing, and, finally, the respiratory movements begin anew. At first the breathing is superficial; but, as the contracted vessels do not easily relax, and as the process of bringing fully arterialised blood in sufficient quantity to the nervous centre is, therefore, necessarily a slow one, and the respiratory acts go on increasing till, ultimately, the arterial spasm relaxes, through the blood becoming sufficiently arterialised, and the stimulus to the respiratory centre consequently diminishes.

Traube, commenting on Filehne's article, denies that increase of arterial tension is a constant accompaniment of ascending and descending breathing. He also objects that it is contrary to analogy to suppose that when two nervous centres are partially deprived of the stimulus necessary to their normal activity, that the effect on one should be much in excess of that on the other. Traube's hypothesis is that all cases of ascending and descending respiration have in common a diminished excitability of the respiratory nervous centre. In consequence of this a greater amount of carbonic acid than is necessary, under normal circumstances, must accumulate in the blood, in order to bring about an inspiratory effort. This accumulation occurs earliest in the pulmonary vessels, and the first effective excitation of the nervous centre is transmitted through the pulmonary branches of the vagus. These are, however, only capable of producing shallow, superficial respirations, such as are observed after the pause, and which are not sufficient to prevent a further accumulation of carbonic acid in the blood; so that, ultimately, the cutaneous and other centripetal nerves—all of which have the power, as Volkmann has shown, of conveying to the medulla oblongata a stimulus which is imparted to the nerves of the respiratory muscles—come to add to the impression, and assist in calling out the respiratory activity.

PART IV. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE COLLEGE OF PHYSICIANS.

Wednesday, November 18th, 1874.

JAMES FOULIS DUNCAN, M.D., President, in the Chair.

The PRESIDENT read the following Inaugural Address:—

GENTLEMEN,—Through the kindness of my brethren, the Fellows of the College of Physicians, I am again permitted to occupy this Chair, and to preside over your deliberations for another year—an honour which I feel all the more keenly because it implies, in some measure at least, an approval of the way in which I have discharged the duties of my office of President in the year that is gone. It is not my intention to occupy your time this evening with any lengthened observations of an introductory character, because I think most of us are now tired of inaugural addresses, and there is nothing that I can see in our present circumstances to render such a course necessary. You are all sufficiently acquainted with the objects for the prosecution of which our Association was originally formed, and with the manner in which our proceedings are conducted, and I have nothing to suggest in the way of alteration or improvement.

The Report which you have heard read gives a faithful but succinct account of our proceedings during the past session, and affords abundant proof that the labours of our members have not been permitted to flag, and that subjects of a novel and interesting nature have been brought under our notice. With reference to the changes in the Constitution of the Society, which the Council have submitted for your consideration, it is hardly necessary for me to say that they have my warmest approval. Emanating, as they do, from a set of gentlemen who have managed your affairs so admirably in times past, and who have the best interests of the Association at heart, they are eminently deserving of your unanimous and cordial adoption. While you increase the personal patronage of the

Members by giving them the power to elect, to the high office of Vice-President, three gentlemen, from the general body of the Association, who may seem most deserving of such a distinction, it maintains the principle, which was adopted when the existing Constitution was framed, of keeping up a close and friendly connexion between the College and the Association, by making the Vice-President of the College an *ex-officio* Vice-President of the Association for the time being. The creation of these additional officers will not only enable you to pay a becoming compliment to many Members of the body, in turn, who otherwise would be excluded from such a distinction, or would enjoy it at rare and distant intervals, but it will have the effect of increasing their interest in your proceedings, and make them honour the meetings of the Society more frequently by their presence.

But, while I do not intend to detain you this evening with any formal address, there are two or three topics upon which I wish, with your permission, to make a few brief passing observations, for this reason more especially—because the subjects to which I allude, though full of interest to us as a body, and intimately connected with our professional pursuits, are yet of a nature not to fall properly within the scope of our ordinary proceedings, which are strictly limited to the discussion of scientific and practical questions.

The first of these that I shall allude to is the Public Health (Ireland) Act, passed in the last session of Parliament—a measure which, if properly and effectively administered, is likely to prove one of the most beneficial pieces of legislation ever introduced into this country. At present we can form only a very imperfect conception of the amount of good it is calculated to effect. It is a fact which cannot be denied that many diseases, formerly common enough in this country, have been virtually extirpated from among us, and others, with which we are still familiar, have lost much of the virulence they formerly exhibited, through the improvements which have been slowly and imperceptibly introduced into the habits and dwellings of the people, as the result of the progress of civilisation and knowledge—improvements introduced not for the purpose of effecting these objects, but solely to gratify our taste, to increase our comfort, or, still more, from the progress of luxury. Can it then be a matter of doubt that greater and more perceptible benefits will follow when the laws of health are better known by the population at large, and when every care will be taken, as far as the framework of society allows, that these are not wantonly infringed through ignorance, neglect, or selfishness.

Hitherto the State has seemed to concern itself as little as possible with this important matter. Taking it for granted that each individual member of the community had a far greater interest in the preservation of his own health and life than any one else could have; it left him free

to do, or omit to do, whatever might be necessary to secure this important end ; it neither helped him in the performance of the duty, nor punished him for the neglect of it, nor infringed, in any way, his personal liberty in this matter, so long as he did nothing flagrantly to injure the sanitary condition of his neighbours. But this is evidently a false principle in political economy. The welfare of the Commonwealth is indissolubly bound up with the well-being of each and all its members. The productive power of any State bears a direct proportion to the physical health and the mental vigour of the masses, and anything that impairs either or both of these will be followed by an immediate and corresponding loss in the material resources of the people. These things require only to be stated to carry conviction to the mind ; and it is, therefore, a matter of congratulation for us to know that our country has, at last, been awakened to a sense of this long-neglected duty, and has, in all earnestness, set about taking the necessary steps for the fulfilment of its obligations.

I do not think it too much to assume that great changes in the climatic character of many districts through the country will follow the introduction of this measure. The soil will become drier and the atmosphere less humid from the effective drainage of a district, because the moisture, having a speedier and more effective escape from the ground, will flow into the rivers, or be aggregated in ponds and lakes, so that the ground will dry up in a shorter time, and the evaporation bearing a definite ratio to the extent of surface will be to a smaller extent than takes place at present. This must have a most important bearing on the health of the people, rendering them hardier in constitution, less susceptible of cold, and enabling them to spend a greater portion of time daily in the open air.

Then, again, I think there is the greatest possible ground for expecting a very marked improvement in the sanitary conditions of our cities and towns. Indeed, it is here especially that the good effects of this Act are to be looked for—at least, at first. It cannot be too strongly impressed upon the mind of the public, that the greatest possible diversity exists as to the rate of mortality and the amount of sickness prevailing habitually in different towns and cities, and that in some remarkable instances the largest cities and the most densely populated are decidedly the healthiest, simply for this reason, that in them the inhabitants are more favourably circumstanced in the various respects that conduce to health and cleanliness. Nor is it too much to hope that a marked beneficial influence will be exerted on the habits and moral conduct of our people as well, when the conditions of their daily life have been altered for the better ; for it cannot be denied that intemperance and immorality too often spring up as a sort of natural consequence when the vital condition of the individual is deteriorated, just as in the vegetable world trees decaying

from old age become the nursery of parasitic growths, that in a more vigorous state would never have appeared.

The bearing of this Act on the future prospects and position of our profession—especially on those members of our body who will be more immediately concerned in carrying out its provisions—appears to be deserving of a passing remark. Heretofore the medical officers of the various dispensaries through the country, though discharging duties of the first importance to the State, have not been treated with the consideration becoming their character and attainments, nor adequately remunerated for the large amount of mental and bodily exertion they have to undergo. I am free to confess, that if we are to judge by what has hitherto taken place at the meetings of the newly-constituted sanitary authorities, there seems but little ground for congratulation. The insultingly small additions that have been made to the existing salaries, as recompense for the new duties they will have to perform, plainly prove that the guardians are either grossly ignorant of the nature and extent of the work they will be called upon to go through, or that they intend the Act to remain practically a dead letter. Still I cannot help thinking, notwithstanding all this, that the ultimate effect of the Act will be to raise the status of the dispensary doctor, and to render him more independent of the little clique with which he is generally connected in his official relations, and who endeavour to make him feel, as far as they can, the weight of their authority. Much of the low position our brethren have hitherto occupied is to be traced to the fact that they are brought in their daily official life into constant and close connexion with their respective Boards of Guardians, and have little or no practical intercourse with the heads of the department. They knew virtually nothing, or next to nothing, of the great central authority, the Local Government Board, so long as they discharged their duties without giving room for complaint; and *vice versa*, the Local Government Board knew as little about them. But whenever a charge of any kind was preferred against them they were immediately brought into contact, and that in an apparently unfriendly way, the one being put upon his defence, and the others acting as his judges. Now, however, as it appears to me, matters will be somewhat changed. The relation between the dispensary doctor and the Local Government Board will be more direct, their interchange of communications more frequent, and, as a necessary consequence, their action towards each other more of a friendly, and less of a judicial, character than heretofore.

Hitherto it was the business of the guardians to look after the dispensary doctor, to see that he discharged his duty in attending to the wants of the poor; henceforth, in a great measure, it will be the duty of the doctor to look after the guardians, and see that they do their duty in enforcing the provisions of the Act for the sanitary improvement of their

respective districts. This change in their relative positions will follow as a necessary consequence of the altered functions imposed on the Local Government Board from what it was under the old Poor Law system. There they were essentially a controlling power—to restrain the guardians from waste and wanton outlay, which, if allowed to go on unchecked, would have led to the confiscation of the property of the landed gentry and the ruin of the country. Under the new Act they become an enforcing power, compelling the guardians, when otherwise reluctant, to adopt the necessary measures for properly draining, cleansing, and sewerage their respective districts, and to incur all the other expenses incidental to the effective sanitation of the people. Looking at the matter in this light, our *confrères* through the country will become integral parts of one grand organisation for the performance of State functions, and will naturally share in the social prestige accorded to persons in the Civil Service. It is true that they will not be altogether and absolutely Government employés. Whether it would be conducive to the interests of the public that such a complete change in their position should be introduced, that a distinct class of medical officers should be created, holding their appointments directly from the Crown, entirely free from local interests and control, and liable to be moved, at the discretion of the authorities, from one dispensary district to another, may be a question; but there can be no doubt in my mind that anything which raises the position of the dispensary doctor, and contributes to render him more independent of local class feelings and interests, must be an advantage, and this I think will follow as a consequence of the enactment under consideration.

I have already alluded incidentally to the possibility of the Act being rendered inoperative, to some extent, by the ignorance and apathy of some, or the open hostility of others, whose active co-operation and assistance will be absolutely necessary, if it is to be productive of any extended benefit. That such a danger exists can scarcely be denied. A great many guardians, looking to the great weight of taxation already pressing on the ratepayers, are extremely reluctant to add to the burden, more especially because they are sceptical of any corresponding advantages likely to result from the outlay; and others, perhaps looking on the inspector's duties as of an inquisitorial character, and likely to interfere with the private concerns of individuals, endeavour to throw every difficulty in the way of having their duties properly performed. The corresponding Act in England has been rendered abortive by the want of sufficient power on the part of the Local Government Board to enforce the execution of the necessary works. It is to be hoped that, owing to the fundamental differences in the provisions of the English and the Irish Acts, matters will not be allowed to take the same course here that they have done in the sister country; but still it is to be feared that,

instead of aiming at having the full measure of sanitary improvement effected which the existing state of science shows to be practicable by a judicious outlay in the first instance, the sanitary authorities will be satisfied with a perfunctory performance of their important duties, which will make matters very little better than they are at present, and thus the whole machinery of this important enactment will be exposed to ridicule and contempt. Nothing is more calculated to defeat the object which all sanitary reformers hold dear than such a course. It is obvious that the expenditure, even on the most restricted scale of salaries, must be large; and it is quite possible that we may have all this expense gone to without having any corresponding advantage, if through a mistaken economy a sufficient sum is not expended to effect the necessary improvement. If this should happen, the cry of *cui bono* will speedily be raised, and a retrograde movement will set in more damaging to the cause than if the attempt had never been made.

Now, how is this danger to be averted? Solely by the members of the medical profession throwing their energies heartily into the cause, giving a right tone to public opinion on the subject, and showing, as opportunity enables them, the various important advantages—personal, social, moral, and commercial—that are sure to follow from proper care being taken of everything bearing on the health of the community. Nor must they be satisfied with propounding sound doctrines on all such matters; they must be careful to dissipate vulgar errors—prejudices which are both numerous and deeply rooted; at the same time they ought to avoid taking up hypothetical assumptions or newly-fledged theories as if they were established facts, and they ought to aim particularly at not attempting too much at first, or laying unnecessary stress upon the minor points of sanitary science; for, however important these may be in themselves, when viewed in relation to the great end to be attained, the attempt to enforce them on public attention, before the mass of the community has been educated up to the point necessary to their acceptance, will only end in disappointment, and will make the hearers less ready to accept our instructions on points more obvious and of greater urgency.

One of the greatest errors to be combated against is the notion that measures of a sanitary nature are only necessary in times of threatened epidemics, or the prevalence of the more dangerous zymotic diseases. It is quite true that the necessity of proper precautions at such a time is obvious to every one and universally admitted; but to limit the adoption of such measures to periods of danger is as foolish as the course too commonly followed by the Government of this country in reducing our naval and military establishments to a mere skeleton in times of peace, and then, at much greater cost, amid hurry and confusion, attempting to repair the deficiencies of our equipment on the declaration

of war. The most economical system in both cases is by timely fore-thought to have everything ready for contingencies; when, if the threatened danger comes, we shall be the better prepared to meet it. But in many instances, to be prepared beforehand, is to be effectually guarded against the coming risk. If the germs of epidemic disease do not find a fitting nidus for their development, they will fall abortive on the district, or only put in an appearance to convince the sceptical that the danger was real though the injury has been trifling. If, on the other hand, through supineness on the part of the authorities, the festering plague spots are permitted to lie undisturbed, we shall pay the penalty of our neglect by having to pursue our adversary at a disadvantage after he has made himself master of the situation. But the benefit to be derived from improved conditions of health—the result of proper sanitary regulations—is not to be limited to seasons of epidemic outbreaks, though it may be less obvious from the slow pace at which the work of destruction proceeds. Men are naturally alarmed when sickness is rife and deaths become sudden and numerous, but they are less apt to have their attention attracted when disease creeps in insidiously, and events follow in what is considered to be the ordinary course of nature. Many obscure forms of ailment have their origin in some noxious emanation that escapes notice from its inappreciable subtlety, when it breaks its force in some single member of a family whose constitution may be weaker than the rest, leaving the remainder in the enjoyment of rude health.

I was forcibly struck with a remarkable instance of this kind which came under my observation when Physician to the North Dublin Union a good many years ago. The daughter of the then apothecary to the institution was attacked with an obstinate form of diarrhoea, which resisted various kinds of treatment resorted to for her benefit. She was reduced to a skeleton, and seemed to be dying, though evidences of any organic affection were sought for in vain. As a last resource she was sent to the country, where she soon recovered her health, and after an absence of a few months she returned home; but she was not long again there until the same train of symptoms returned. The evacuations from the bowels resumed their former unhealthy character, and the resources of medicine were as impotent to relieve her as before. All this time every other member of her family, living in the same house and occupying the same rooms, remained strong and healthy. The sewers of the house were carefully examined, and these, having been made when the institution was Government property, were large, with a fine fall, and totally unobstructed. It was not until a later period that the cause of this unfortunate child's sufferings was discovered. Some repairs to the floor of a sitting-room becoming necessary, the boards were taken up, and underneath these were found the remains of an old superficial sewer,

badly covered in and choked with dry excrementitious matter, not rendering itself obvious to the senses by any perceptible odour, but undoubtedly emitting a subtle poison sufficient to undermine the constitution of this little girl, which, had it been allowed to go on unchecked, would have most assuredly caused her death.

It must not be forgotten that in a country like ours much opposition may be expected from the lower orders in our attempts to effect improvements of a sanitary kind, even when these are eminently conducive to their comfort as well as to their health. Their habits have been too long formed under an opposite condition to be easily changed. They are accustomed to wretched dwellings, to dirt, foul air, and close rooms; and they do not feel the inconvenience of a state of things that would be absolutely insupportable to persons differently brought up. Hence they do not understand the motives that prompt benevolent individuals to take so much pains to improve them against their will. The easy, contented nature of the Irish race, combined with indolence, the offspring of poverty, and ill-requited labour, has undoubtedly much to do in producing this state, and it will take a long time of patient effort and kindly remonstrance to overcome their prejudices and produce a better state of feeling. Let the members of our profession, making all due allowance for their very natural reluctance to alter all at once their accustomed modes of living at the bidding of authority, endeavour to meet them in the same kind, conciliatory spirit they have ever done, and let them leave no means untried in the way of reason and expostulation to accomplish the end in view before resorting to the harsh compulsion of the strong arm of the law.

Let me now turn your attention for a moment to another subject of a different kind. I confess I allude to it with some diffidence, from a fear lest my motive may be misunderstood, and because, being intimately connected with sacred things, some of you may think it ought not to be referred to in this room. But, however we may differ in our religious opinions, I trust we are all agreed in holding the fundamental principles of Christianity, and that the views I am about to express will not give rise to any dissension among us. The subject I refer to is intimately connected with a case recently tried in England before Baron Pigot, in which a member of the sect, calling themselves "The Peculiar People," was charged with causing the death of his child, by wilfully withholding from him necessary medical treatment. There seems to be little doubt that the fatal issue might have been averted had it not been for the unfortunate prejudices of the father; but on the trial it was clearly established that the father, though he would not allow a medical practitioner to be called in, was not deficient in natural affection, that he had supplied the child with proper nourishment, had friends to see him and act as nurse-tenders, and had, in accordance with the religious views he

professed, sent for the ministers of his Church to pray over him as the proper means of promoting his recovery. It was plain that this was not a case for punishment, and the jury, under the direction of the judge, very properly acquitted him. Any other course would have been plainly one of persecution. The man acted conscientiously according to the light he possessed. What he really wanted was to have been better instructed in the meaning of that passage in Holy Writ upon which he relied for guidance.

I now refer to the case, not from the vain idea that anything I can say can reach him or any member of the body to which he belongs, but because I think great errors prevail on both sides of this question, which a right understanding of the passage under consideration would go a great way to remove. On one side we have persons—the members of this sect, for example, but the opinion, I believe, is not confined to them—holding that prayer is to do everything in sickness, and that remedial treatment is useless; on the other hand, there are persons who believe that prayer is practically to be disregarded, because everything depends on treatment. Let us look at the passage for a moment. It is to be found in the 14th and 15th verses of the last chapter of the Epistle of St. James. The words are—"Is any sick among you? let him call for the elders of the Church; and let them pray over him, anointing him with oil in the name of the Lord; and the prayer of faith shall save the sick, and the Lord shall raise him up." Here is a positive injunction given as to what is to be done when sickness comes into a house—namely, to send for the ministers of religion, and to have prayer made over the sick man; and the promise is given that if they pray in faith he shall recover. Not a word is said about the doctors—not a word about the use of means—therefore it is inferred that they are not to be resorted to. Those who hold this opinion evidently seem to think that the silence of Scripture in this instance is to be interpreted as a prohibition. But is this so? I think not; the whole analogy of interpretation is the other way. Many passages might be quoted to show that the Scripture is silent concerning things not pertinent to the matter in hand, or too obvious to require to be mentioned in detail. In this particular case God addresses us as rational creatures, endowed with faculties sufficient for our self-preservation, and capable, by study, of learning the proper mode of treating disease, and he takes it for granted that these shall be used as a necessary condition to his answering prayer—hence there is no need for any explicit statement to that effect. Even in the case of miracles recorded in the sacred volume, a careful examination will lead us to perceive that nothing supernatural was ever done beyond what the peculiar circumstances required. When the apostle Peter was delivered by the angel out of prison, the miraculous interposition extended no further than bringing him out into the street. The angel

then left him, because his own senses were sufficient to guide him afterwards. Again, our blessed Lord, after he had raised Jairus's daughter from death, and restored her to her parents, commanded that something should be given her to eat, to show that though she was restored to life by the exercise of his divine power, her further sustenance was to be provided for in the ordinary way. And a third example may be taken from the life of St. Paul, who, in his memorable voyage to Malta, received a promise from God that none of his shipmates should perish in that fearful storm, but yet he felt it necessary, when some of the sailors in the night were about to leave the vessel, to call to the centurion and soldiers, and tell them that except the seamen remained in the ship they could not be saved. The proper inference from all these passages is that the use of means is necessary as a condition to the accomplishment of any object we have in view, and in this common sense and universal experience concur. They tell us that if a man will not till his farm and sow his field he will never reap a harvest. If we do not use the faculties God has given us, we shall to no purpose cry to him for help. The text then under consideration, when rightly understood, does not contradict that doctrine, or lead us to regard medical treatment of the sick as unnecessary or improper. Then, again, as to the other point—"The prayer of faith *shall* save him"—how is this to be understood? Does it promise the absolute and uniform recovery of the sick in all instances? Does it mean that if we take all proper precautions, use the best skill we can procure, and then pray, the result will be the *certain* restoration of the sick man to health? Or, to put it in another way, if the patient, notwithstanding the careful observance of all these conditions, shall die—are we justified in saying that the prayer has been of no use, or that God has been unmindful of his promise? Certainly not. Here, again, a sound judgment and a careful study of other parts of the divine record will guard against error, and enable us rightly to interpret the true meaning of the passage. Is it not clear that when God makes a promise such as is here given, it is not to be understood that he denudes himself of his divine sovereignty, and that he leaves in the hands of his creatures absolutely the determination of such a question as this? If he did, what would become of the moral government of the world? If he did, which of us would ever be permitted to die? The absurdity of such an idea is sufficient for its refutation. The plain meaning, then, of the promise must be, that if it be for the sick man's benefit as well as for the divine glory—because this latter must be paramount to all other considerations—God will, in answer to the prayers of his people, restore him to health, but not otherwise. In confirmation of this we have the fact that St. Paul's prayer, to have the thorn in the flesh which buffeted him removed, was not answered in the way he wished, though repeatedly urged, but the assurance was given him instead that God's grace would

be sufficient to enable him to bear it, and that his strength should be made perfect in St. Paul's weakness. We have a still more remarkable proof in St. Paul's second Epistle to Timothy, the last chapter, where he says—"Trophimus have I left at Miletum sick." How was this? Was St. Paul indifferent about his friend's state of health? Did he not pray for him? If he did, why was he not restored? Simply because, in the inscrutable purpose of the divine mind, some good, sufficient reason existed why the prayer should not be answered—or, if answered, not answered with the promptitude and in the way that even an Apostle expected.

I think a right understanding of this matter important to us all. As professing Christians, whatever our denomination may be, we admit the duty of prayer, and are prepared, I hope, to maintain its efficacy; but, unless we have a clear perception of its proper place and function in the treatment of disease, we may be led to expect too much from it, and then, by an easy and natural transition to the other side, to doubt that it is of any use at all, and so to lay it aside altogether. Evidently, it appears to me, prayer is in its right place when, without discarding the proper use of means, it is resorted to for the purpose of securing the divine blessing on the treatment employed, under the thorough conviction that the best directed efforts of any physician are of no avail unless accompanied or made effective by the blessing of the Lord himself.

The accuracy of this view will be established by a reference to those instances in the sacred narrative where medical men and medical treatment are alluded to. One of these may be dismissed at once. It is the history of the woman having an issue of blood, who had tried many physicians, and was nothing the better, but rather the worse. This is only stated to give point to the fact that her malady was of long standing and incurable by ordinary means. The second is that of Asa, who "was diseased in the feet until his disease was exceeding great," and of whom it is said, that "in his disease he sought not to the Lord, but to the physicians"—where blame, as I take it, is given, not for resorting to human skill, but to the doing it to the neglect of what was equally necessary, acknowledging dependence on the divine power to render that skill effectual. The third and last is the instance of Hezekiah, who prayed to the Lord for the prolongation of his life—a prayer which was answered; but, at the same time, the prophet Isaiah, who communicates the fact, tells him to take a lump of figs and lay it on the boil, and he should recover—a convincing argument in favour of the theory I am endeavouring to enforce.

If I am correct in the view I have been advoeating, must it not appear obvious to every one that the attempt to settle the disputed question of the efficacy of prayer, by reducing it to the test of a crucial experiment, as was seriously proposed not very long ago, is as absurd and unphiloso-

sophical as it is unscriptural. You will observe that, in the arguments I have been stating, I have laid no stress upon the qualifying words, "of faith"—the prayer of faith—though they introduce a very important element into the promise—for this reason, that they were quite unnecessary to be considered for the object I had in view, and, besides, they would lead us into the region of polemics, which I wished carefully to avoid, more especially in this place. But, had I done so, it would only enhance the force of what has been already said as to the absurdity of attempting to settle the controversy by a numerical calculation, however elaborate or scientifically conducted.

There is one other topic to which I must refer before I close. I do so with the deepest regret—a feeling shared, I am sure, by every one in this room. I allude to the loss which the University of Dublin, and the entire Medical School of this city, is about to sustain in the approaching retirement of the Professor of Chemistry from that Chair which he has so long and so ably filled. To an audience such as I now address, it is unnecessary to say one word in Dr. Apjohn's praise; you are all familiar with the high character he has attained, and with the abilities he possesses. Most, if not all, of you have been his pupils, and in the lecture-theatre and the laboratory, have enjoyed personal opportunities of appreciating his merits, and of becoming acquainted with the rare qualities he displays as a lucid expounder of the mysteries of science. Clear in his own conceptions of every subject he undertakes to teach, he has the singular felicity of rendering it easy of comprehension to every student in his class. Need I say that the removal of such a man would be sorely missed at any time, but still more just now, when we have had so recently to lament the death and removal of so many other luminaries from among us? Nor is it merely by his eminence as a teacher that he has shed a lustre on the Irish School of Medicine. His name is familiar as a household word among men of science everywhere. His contributions to the scientific journals have been numerous and valuable. He is the author of many researches, as an analytic chemist, which are distinguished for their exactness and originality; and he has been intimately acquainted with every branch of science cognate to his own. In the earlier history of the British Association for the advancement of Science, he was a regular attendant at their annual meetings; and he was highly esteemed as one of that band of illustrious Irishmen that then seemed to emerge from the obscurity in which they were previously hid, and that proved before the world that this country, limited as it is in extent and population, could produce men of great mental power, and fully capable of holding their own, in every branch of intellectual culture, with the most distinguished competitors from other lands. For upwards of forty years the medical students of this city have enjoyed the advantages of his instruction, and now that he has intimated his wish to reduce somewhat of the arduous and incessant

labour he has hitherto had to undergo, it seems hardly fair to grudge him the relaxation he so well deserves and has so fairly earned. But the loss will be ours all the same. There is, however, one consolation to his friends—that he leaves us in a green old age, and with a mind clear and unimpaired. Most sincerely do we hope that he may be long spared to enjoy the honours to which he is so well entitled, in the respect and esteem of every member of the profession.

A case of "The Cheyne-Stokes Phenomenon." By J. HAWTREY BENSON, M.D., Univ. Dub.; F.K.Q.C.P.I.; L.R.C.S.I.; Physician to the City of Dublin Hospital.

MR. PRESIDENT,—That peculiar form of breathing once called ascending and descending respiration, but now better known, especially abroad, by Professor Traube's nomenclature, as "The Cheyne-Stokes Phenomenon," is one especially interesting to us of the Dublin School of Medicine. Its very name, though given by a foreigner, is an acknowledgment of the claims of the two Dublin physicians who first described it, and gave it a clinical significance.

In the year 1868, Professor Little brought the subject before this Society, and, in the following year, I read the notes of a case which occurred in my own hospital practice, at the same time expressing an opinion as to the cause and the diagnostic value of the phenomenon.

In his communication, Dr. Little, upon close reasoning, concluded that the origin of this form of respiration was to be found in a certain mechanical fault in the heart. Upon his theory, as a foundation, I constructed another, adopting his as far as it went, but adding a further requirement, viz.:—"A certain weakened state of the nervous (respiratory) centre, by reason of which the reflecto-motor impulse is diminished," or, in other words, a diminished excitability of the respiratory centre. For some time past, Professor Traube, of Berlin, has been working at this subject, and has arrived at the conclusion that the *only* condition necessary for the production of this phenomenon is "a diminished excitability of the respiratory centre"—exactly the same as my second requirement, though expressed in slightly different words.

It does not follow, however, that even Traube's view must be correct. On the contrary it has been challenged by Dr. Filehne, of Erlangen. The latter holds, with Traube, and, I may say, with me, that, for the production of the phenomenon, the excitability of the respiratory centre must be diminished; but, further, that its excitability must become less than that of the vaso-motor centre.

The grounds of these theories have been lately fully ventilated by a spirited contest between their respective authors; and the greater part of the controversy, as represented by M. Ricklin in the *Gaz. Méd. de Paris*,

has been translated by Dr. Duffey, and has appeared in the last two numbers of the *Irish Hospital Gazette*.

To condense the arguments of these controversialists would be to do them an injustice, so close and consecutive is their reasoning; and to attempt to criticise their theories is outside my present intention. Five years ago, when I published my views on the subject, I might have entered the lists with more confidence; but now, I am, every day, more willing to distrust the adequacy of my former conclusions, and to recognise difficulties which my philosophy never dreamt of then.

At present I shall not pause over the various views of Bernheim, Fræntzel, Brückner, Laycock of Edinburgh, and others, but shall content myself by very briefly detailing the principal facts of a case which occurred in my practice last winter; and, having done so, shall hope to hear the independent views of others, rather than seek to bend them by my own.

The patient to whom I refer was a gentleman residing in one of the suburbs of this city. His age was forty-five years. His illness began last December, with three sharp attacks of acute bronchitis, following each other closely. After recovery from these he experienced repeated attacks of spasmodic asthma. He then became subject to certain cerebral symptoms, such as temporary loss of memory, mental confusion, giddiness, head-ache, thickness of speech, tingling sensations in the extremities. These symptoms were at first transient, but became less so at each recurrence, till at length, after repeated attacks, he became permanently affected with incomplete left hemiplegia.

In the urine, which was previously healthy, albumen with a very few tube casts was now detected; and this was soon followed by general anasarca, which daily increased up to the date of his death.

Imbecility and other symptoms, probably due to softening of the brain, were next observed, and progressively increased.

The heart, from the first, presented the usual signs of hypertrophy, but there was no murmur, nor evidence of any other organic lesion. However, about thirty-five days subsequent to the commencement of the cerebral symptoms, and when hemiplegia had already established itself, the heart's action began to be greatly altered. While the precordial impulse remained exaggerated, the radial pulse became increasingly weak, intermitting, fluttering and rapid, numbering 130 in the minute, without a corresponding elevation of temperature, which at no time since the acute bronchitic attacks rose above 100°, and that but seldom.

A very few days subsequent to the commencement of the heart failure, my attention was arrested by an irregularity in the patient's respiration. This occasioned little notice until, after some days, what commenced as mere irregularity, became developed into the well-marked "Cheyne-Stokes Phenomenon," having the following rather constant rhythm.

Starting from the end of an apnoeal period, the respirations rose by an ascending gradient, till they reached their height after about fifteen seconds. They then commenced a more rapid descent, which was effected in about ten seconds, when an apnoeal period of about twenty seconds succeeded; and, again, the same round of symptoms was repeated, with but slight variation. The sum of the respiratory periods was thus about one-fourth longer than the apnoeal interval. The phenomenon continued twenty-seven days, lasting till within a few hours of the patient's death, when it lost its rhythmical character, became very irregular once more, and remained so to the last.

I regret very much that no *post-mortem* examination was obtainable. However, in the symptoms and physical signs, we have abundant evidence of both cerebral and cardiac lesion. And let me here draw your attention to the fact, that the respiratory phenomenon did not appear till the *cardiac* symptoms had added themselves to the *cerebral*. Side by side with this fact let me place another—viz., that in the case I recorded here five years ago, the phenomenon appeared *only* after the *cerebral* symptoms had added themselves to the *cardiac*.

In this antithesis, whether the respiratory symptoms bore to the two other classes of symptoms the relation of *post hoc* or *propter hoc*, I shall not take upon myself to decide.

DR. HENRY KENNEDY observed, that although this peculiar respiration had been noticed so long ago by Dr. Cheyne, it did not produce any fruits until the able work of Dr. Stokes on the heart appeared, in which he put forward the view that a fatty heart and this peculiar respiration went hand in hand; subsequently, however, a member of that Society, Dr. Head, brought forward a very remarkable case, which he (Dr. Kennedy) had seen during the lifetime of the patient. The patient presented all the symptoms of this remarkable breathing in a marked form. After death the heart was found perfectly healthy, but the diaphragm was fatty. Here was a new feature added to the general opinion that had before existed with reference to the cause of this remarkable breathing. The subject was one which had engaged his (Dr. Kennedy's) attention for many years, and he had arrived at the conclusion that this peculiar symptom was more or less connected with the nervous system generally, rather than with any particular organ connected with the chest. The consideration of some very common phenomena tended to confirm this view. For instance, the breathing, as was well known, became altered in a state of sleep; there was a slower breathing during that period than when the individual was awake and in a healthy condition. Hence some amount of change in the respiration can take place in a healthy state of the system. This became more remarkable in cases of acute disease of the chest. When a patient labouring under a severe attack of

pneumonia fell asleep, his breathing became quieter; and when he wakened up, it again became quicker. Again, in fever there often existed what the late Dr. Graves termed cerebral breathing. Now, in none of these cases was there reason to suppose that fatty degeneration was going on; it was merely a temporary change in the functions of the nervous system which caused this change in the breathing. Again, in hydrocephalus, the effect on the breathing in the course of the disease was often very remarkable—at times very hurried, at times slow, and again very irregular. When these facts were taken into consideration, he thought there was enough to prove that a temporarily modified state of the nervous system was quite capable of altering and modifying the breathing. So he took it to be, in those cases, connected with the fatty heart. The phenomenon existed, not because the heart was fatty, though this state would increase it, but because other parts of the system suffered with the heart. No part of the body seemed free from this change; it went on in the brain, and the vessels connected with the brain; and hence he thought it was (because a general state of change took place over the whole system, involving not only the heart, but the diaphragm, the vessels of the brain itself as well as the respiratory centres) that this remarkable breathing occurred. Within the last four years he had been in attendance on two old gentlemen, one seventy-eight and the other eighty-three, in whom this Cheyne-Stokes respiration became developed in the course of the disease. He was aware for years before of their hearts being fatty; and, when their deaths were approaching, they gradually showed an increase in the form of breathing described by Dr. Benson; and finally, in both, the ascending and descending respiration was extremely marked. It repeatedly occurred that the position of the patients had to be changed in bed, and it was found that the moment they were placed on their sides the ascending and descending character of the breathing ceased. Something like this has occurred in a case of apoplexy, to which attention had been called by a London physician, in a late volume of the "Medico-Chirurgical Transactions." The patients were in a state of stertor, but when turned on their side the stertor ceased.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

THIRTY-SEVENTH ANNUAL SESSION.

Saturday, 21st November, 1874.

EVORY KENNEDY, M.D., President, in the Chair.

The PRESIDENT read the following Inaugural Address:—

TAKEN in its most comprehensive sense, the duty of the physician is to deal with the abnormal functions and structures of the human body and mind. In order to discharge this duty he must know, accurately, what these vital functions are in the normal state—upon what their normal actions depend—what the structures are that perform these functions—what variations in function constitute disease, and how far these variations are due to structural alterations—how far to other causes.

Medicine is a science of observation; consequently, its professors (deprived of those advantages possessed by professors of the exact sciences) have ever laboured under great difficulties in its investigation. Man we accept as the highest and most perfect type of creature known to us—a machine constructed with the most consummate skill—with mechanical adaptations the most complete—with organs the most complex, capable of executing the most heterogeneous and most harmonious duties—with laboratories combining within them synthetic and analytic powers that tax the skill of the most expert chemist to imitate. Superadded to all these perfections, this wonderful specimen of mechanism is endowed with powers of motion, sensation, perception, reason, free-will, and reproduction, the existence and continuance of which are secured by a motive force known as life—a power or property which has hitherto baffled alike conception, description, and definition.

The difficulties investing this great mystery should not cause us to despond, or relax in our efforts to elucidate those laws upon the study of which so much of the weal of mankind and of our own usefulness, as professors of the noble art, depends. A conviction of the importance, to us, of emerging from the dense atmosphere of thought that too commonly engrosses and stifles the physician in the details of practice, induces me, in addressing you on this occasion, to soar, for a moment, into the lighter atmosphere of biology, in its application to disease—an inquiry which involves the necessity of dealing with our *raison d'être*. Much attention has lately been roused towards biology by the lectures delivered at the Belfast meeting of the British Association.

There can be no doubt that we owe to the Darwinian school of philosophy a deep debt of gratitude for the light thrown upon biological science, more especially in the confirmation of the laws known as those of evolution and selection.

We freely admit that man, as inferentially proved by Professor Huxley, is an automaton. But let us examine and consider the construction of the most perfect and ingenious adaptation of mechanism art can produce—say the automaton chess-player, or Babbage's calculating machine—and ask ourselves whether it is probable, or even possible, for the human mind to conceive that—by any fortuitous concourse of atoms, any powers of attraction, any evolution, any selection—such an instrument could be constructed, and so constructed that an additional faculty or power could be imparted to it of reproducing itself, not as originally formed by any of the laws referred to, but by an entirely new process, that of throwing off from itself an instrument like itself, complete in all its structures and functions like its parent?

Up to the present moment we must admit that no aggregation, no union or reunion of fortuitous atoms, no symmetrical crystalline increment, no vegetative force, as insisted upon by Needham, no *corruptio unius generatio alterius* doctrine, has succeeded in explaining the production of a living creature. These, and a host of such like theories, have, at various times, occupied the attention of thinkers; and successive schools of thought have grasped at one or other of the laws of matter to explain and elucidate vital phenomena. Thus, attraction, mechanics, hydraulics, chemistry, motion, change, and even, as a *dernier ressort*, the term, *mutatis mutandis*, have been pressed into the service. True it is that every one of these laws, and many more observed in momentary operation in the mineral kingdom, are freely applied in the animal; but these are merely the properties, functions, or effects observed in operation in vital structures, and help us to trace the links of the chain, but the causation is the point of suspension beyond our reach.

Bichat pointedly illustrated the extent to which the laws of physics had been carried in explanation of vital phenomena, by observing—"If physiology had been cultivated by men before physics, as the latter has been before the former, I am persuaded that they would have made numerous applications of the first to the second. They would have seen rivers flowing by the tonic action of their shores, crystals reuniting themselves by the excitement which they exercise upon their reciprocal sensibility, and plants moving because they reciprocally irritate each other at great distances." And it is impossible to express our knowledge on this subject in better language than that used by Tyndall,* in treating of Spencer's views, as follows:—"In fact the whole process of evolution is

* Address delivered to the British Association, as President, at Belfast, 1874.

the manifestation of a power absolutely inscrutable to the intellect of man. As little in our day as in the days of Job can man, by searching, find this power out. Considered fundamentally, then, it is by the operation of an insoluble mystery that life on earth is evolved, species differentiated, and mind unfolded from their prepotent elements in the past." The President of the British Association subjoins the following brief comment:—"There is, you will observe, no very rank materialism here."

It is to be deplored that men devoted to the exploration of science, in its more obscure walks especially, should have their equanimity disturbed, and their imaginations trammelled, by a consideration of the possible influences the elucidation of truth may exercise upon particular schools of religious thought. God is a God of all truth, and shrinks from no exposition of His own works—let man reconcile them as he may to his narrow or broad reading of Revelation.

In our own times a vast change has come over the minds of the soundest theologians, of all persuasions, on this subject; and, as we see most notably in the science of geology, the ablest divines are those who hail its discoveries with a full confidence that, as the light of true science could not possibly throw an obscuration on the light of true Revelation, so the former, when properly understood, ought not to be measured by the depth of shade attempted to be thrown upon it by the haze of ignorance. Let the conclusions of science, arrived at by whom they may, be accepted as truths if true, and rejected unsparingly if false.

The propounder is no part of the discovery, neither is his sect nor creed. If an enemy to our faith it is who has done it, his testimony is the more valuable, since every additional truth elucidated must redound more to the glory of the God of truth. We shall see, before concluding, that philosophers, in dealing with asserted facts in science, whether recently insisted upon or received as such for ages, evince no hesitation in rejecting them when proved untenable or fallacious. All we ask is that the objectors to discovery on religious grounds—or, rather, on their interpretation of Revelation—should try scientific questions by the same crucial tests that natural and moral laws justify; and when they feel tempted to put Revelation against progressive discoveries, before bringing the ark of God into the battle, they should satisfy themselves upon the truth or falsity, *per se*, of the matter in question. Gamaliel's reasoning is quite as applicable to philosophy as to Revelation:—"And now I say unto you, refrain from these men, and let them alone; for if this counsel or this work be of men, it will come to nought; but if it be of God, ye cannot overthrow it, lest haply ye be found even to fight against God."

On the other hand, scientific men should not be induced to tread rashly upon sacred ground, or provoke, by their language, attacks upon

the sciences to which they are devoted—thus raising a new issue of their own seeking, directed into channels in which they may find themselves out of their depth, and risking for a time even the loss of the truths contended for, since society not unfrequently, however unfairly, identifies a discovery with its advocate. The Scriptures were never intended to anticipate or supersede the discoveries of natural science, and least of all are scientific reasoners excusable in raising such an issue. The soundest thinkers have ever proceeded in this spirit. Thus Newton, Spallanzani, Bacon, Berkeley, Herschell, Hamilton, Whately, Faraday, Romney Robinson, Kingsley, and Haughton, have pursued this two-fold path of investigation with fearlessness and faith.

It is not for us to interpose barriers to human investigation upon the ground of man's limited capacity. True it is that human vision does not extend far enough into space to see a tithe of the worlds that occupy it, neither can it decipher the structural page impressed upon the monad or atom placed within a few inches of the eye without the aid of human inventions. This teaches us two lessons—one, of a true humility in acknowledging that our unaided bodily powers are limited by our structure; the other, a true self-respect, since we are made in God's own image, *quoad* our reason and moral nature, in the exercise of which (at least in the natural world) He placed no limits.

These considerations should encourage us to free investigation in nature and science, as the obvious duty of man. The greater the grasp, the more comprehensive the acquirements—the larger the capacity of the creature, the more evident the omnipotence of the Creator. Man can make a watch—it requires God to make a man. Let us, then, accept the conclusion of the philosopher, as an additional testimony that animals and men are automata, and let us persist in our endeavours to elucidate the study of nature in all its structures, phases, and functions, nor presume to close up against each other, or ourselves, any avenue, however winding, any channel, however difficult, any haven, however remote, that may open up to our ken knowledge—obscure, elevated, or inaccessible as it may appear to us at this moment.

In my Inaugural Address of last year, I ventured to call the attention of this Society to the influence exercised by the laws of evolution, and what Mr. Darwin defines as that of "natural selection," in resisting the decadence of the vital powers, and pointed out its influence in relation to disease—more especially to scrofula. We shall, with your permission, before taking this investigation up at the point we reached on that occasion, accept as admitted "that the activity or vitality of each animal, and especially of man, is, as a whole, proved to be as the transferred activity of his molecular structure," and add that this applies to the earliest period of what I ventured to term his growth; for I maintain Topsy was a philosopher when she said—"I 'spex I grow'd." But man

is originally, when first sensible to our sight with the aid of the microscope, a minute portion of cellular tissue—in fact, a plastic germ—which evolves or develops by an inherent incremental force, assisted by the absorption into its substance of a nutritious pabulum supplied by the matrix. If we trace the germ further back to a period before its individual development, we find it, as you perceive it here, a very minute portion of granular membranous structure. The germ of this germ was traceable in the infant at birth—nay, in the foetus. A similar germ existed in its parent—and, no doubt, in the human stock throughout all time.

I shall not delay you by dwelling upon the distinction between epigenesis and evolution.

Many theories started up at intervals from the time of the Greek philosophers, but especially of Lucippus and Empedocles, who ascribed the phenomena to the reunion and separation of fortuitous atoms, until the period of Harvey's masterly elucidation of oviparous generation.

Without being deterred by what we may term the puerile mechanical difficulties of "emboitement," or impossibility of the germs of the incalculable myriads of germs resting within germs, like a nest of pill-boxes, throughout all time, let us accept the general fact. The ovary selects, assimilates, and converts into its own growth-tissues those portions of the blood flowing to it exactly in the same manner as do the glandular and secreting organs of all the other animal tissues.

There is, therefore, nothing in the slightest degree different or more difficult to comprehend or accept in this than in the liver secreting the bile, or in the mesenteric or thymus glands supplying the waste of their own tissue. Indeed, in point of comparison, the wonder would appear greater that the digestive organs should possess the power of selecting chyme from the crude variety of edibles conglomerated in an alderman's stomach at a lord mayor's feast (*a mêlée* that might puzzle even a Pepin's digester to dissolve), than that the organ in question should possess the power ascribed to it.

Philosophers have, in my mind, ever dealt with the question of primary or individual vitality on an erroneous principle. They have treated it as if there was a moment or definite time at which it was incipient; whereas true philosophy would expunge the term generation, and even regeneration, as physically applied, from our dictionary. The first reproductive creature was constructed, as we see in the ear of corn, with the germ of a future growth forming a portion of its primitive entity. No new creation or generation was required to cause the ear of corn to grow and reproduce itself; it was only necessary to stimulate it and place it in such a relation with external influences, as to secure its power of assimilating into its structures the pabulum necessary for its development and growth; and so enduring, so pertinacious, so patient (if we

may be permitted to apply a moral epithet to its qualities) is this grain—when placed under circumstances favourable to its preservation, “*moins*” its growth and development—that, as we see in the mummy wheat, it has, after fifteen hundred years, retained its vitality and power of growth—sprung up into vigorous development, and perpetuated its offspring to an unlimited extent.

Exactly the same vitality, the same perpetuated organisation, exists, “after its kind,” in the animal and in man. True oviparous reproduction or descent gives us, on a limited scale, the same train of phenomena. The egg of the fowl, after its stimulation, is separated, placed apart; an interval of days and weeks, under favourable circumstances, elapses; the further stimulus of heat is applied and sustained; incubation is completed, and the creature chips its shell, walks about, and eats. At no moment could life be said to commence in the egg; it was there, and, so to speak, had been there from the moment the first parent fowls were created! Where, then, is spontaneous generation? the inflated raving of the doctrinaires. God, in his wisdom, created man, “male and female created He them.” He it was who uttered the dictum, “*Be fruitful, and multiply and replenish the earth*”—the very language of the Creator, explaining that man was to continue his species by a *fruitful growth*—exactly the language used in His dictum to the vegetable kingdom.

Let us now turn to the practical application of these views, in doing which you will, I trust, excuse my briefly recapitulating the observations I made from the Chair last year upon scrofula.

Scrofula.—The strumous habit, whether hereditary or incurred by imperfect nutrition and other depraving influences, is characterised by general and local symptoms. Its occurrence in the lower classes and animals is sufficiently explained by want, exposure, and unhealthy atmosphere—especially crowding. In the upper classes its hereditary types are also frequently met with, whilst it is an induced or sporadic disease in them; and, although, like the poorer classes, it may be traced to imperfect nutrition, the inanition depends often upon a cause directly the reverse—namely, upon an excess or inappropriate supply of food of a too stimulating quality, starving them in the midst of plenty by thus overloading and over-stimulating the digestive organs, over-taxing their powers, and inducing such derangement as unfit them for the healthy exercise of their functions. This causes a failure in the assimilating powers, as injurious to healthy growth and development, as occurs when food of a wholesome and natural quantity and character is withheld.

The great mortality of children from this disease proves it to be one of growth or development. But, although a large proportion of those who have (from whatever cause) incurred the specific habit known as the strumous, survive childhood, they carry with them through life a latent enemy, a pervading evil influence, permeating every tissue in

their body, which watches to take them at a disadvantage the moment the circumstances or condition of the possessed individual afford an opportunity.

To us, in our more favoured country, the varied phases of strumous diathesis offer themselves in sporadic or, at most, family groups. It is not so in other countries. In Switzerland, Prussia, Germany, Poland, and elsewhere, it is a constantly existing endemic disease, perpetuated by local atmospheres, *non-naturals*, and other external influences, as well as by hereditary taint, in whole districts of country, and numbering its victims by millions. When we consider that all this misery is *preventable*, if not curable, that proper laws of hygiene, if carried out, might, in the course of two or, at most, three generations, put an end to it, and prevent this bestial deterioration of millions of our fellow-creatures, we may well exclaim, in the language of the prophets, "How long?"

In tracing the strumous habit to defective nutrition, it would be wrong to omit the influence, in its hereditary development, produced by the practice of confining the reproduction to the same stock. This is a practice that breeders in domestic animals always avoid, and the ill effects of which (notwithstanding the denial of Erichsen and others) most gynæcologists are familiar with. Now, without going with Darwin so far as to attempt to explain the process of evolution by purely physical causation, independent of the existence of a guiding intelligence, I am quite satisfied that it is within the capacity, and consonant with the design of the creation, that all organisms, as Darwin asserts, should be variable. The views of Professor Cope and Murphy appear to support this idea, and Agassiz' opinions on the early development of character in the species strengthen it. But this variability is a part of that original design stamped upon them. Now, let us carry that idea a little further, and accept these variations, not merely as accidental occurrences taking place—as Mivart, supported by Professor Murphy in his rough calculation, suggests—at intervals, varying from thousands to millions of years, but as constant in their occurrence and as necessary to secure organic progression—let us accept it as a general law, applicable to the highest as well as the lowest grades, operating in the most perfectly developed specimen of the creation, man, as in the primary protoplasm of the lowest organised entity in the creation, *that all organisations are not merely variable but varying*—let us further admit that this law is established not merely for the purposes of evolution, *but for the sustentation in their healthy and normal state of the endowments, capacities, and organisations of the genus*, as well as for their highest development and conditions in the species, with this qualification we may admit selection as part of our belief in the laws of nature, without infringing upon either the dicta of Paley or the creative jurisdiction and design of the Deity.

In the vegetable kingdom the law of selection is as remarkable as in

the animal kingdom. Witness the pains taken and the designs planned for affording opportunities for stimulating, as it is termed, the plant into a healthy vigour and variety, in its reproductive growth, by the application of pollen from a new stock.

The recent discoveries of Professor Burdon Sanderson, respecting the electrical phenomena which accompany the irritation of certain leaves, and similar to those which occur in the animal muscle, throw an additional light upon the analogy existing between the two kingdoms, and render it not unlikely that the contractile or sensitive substance, both in muscle and vegetable tissues, may eventually prove to be protoplasm, the principal difference observed being the time required for the restitution of its irritability after exhaustion—the period of latent stimulation being only one-hundredth of a second in a muscle, whereas it is one-third in a plant.

There can scarcely be any principle in physiology more satisfactorily established, in my mind, than that of hereditary selection—a principle as conclusively proved by affirmative facts as by negative results.

If the investigation of the natural laws that govern life justify our adoption of the theory of evolution, and if selection or variation to this extent be further admitted, that no two leaves or faces are exactly alike, but varying; that these variations extend throughout all organised structures in their growth and renewal, and are productive of power and vital force in the possessor, and perpetuated by hereditary influence—if we further believe that, although wearing out in the individual, as must be the case in any machine with or without vital power, as so well explained and insisted upon by Professor Owen, and that the vigour and vitality of the germ is secured by separation from the parent stock, whilst possessing its vital energy in the highest degree—if, I say, we admit these conclusions as fairly arrived at by observation and reasoning, then I cannot see how we can limit these vital laws to arbitrary periods; we must, on the contrary, grant their ever-presence and constant operation in organic structures.

The negative results, or the effects observable from neglect of attention to hereditary selection, are especially so in scrofula, which we have already traced, when sporadic, to defective nutrition. The instances usually adduced as illustrative of the descent of what is termed a favourable variation to the offspring, are those modifications of structure which enabled the parent to survive in the competition for life. What structural endowment can be more calculated to effect this object than power of selection, so as to secure organic progression, and the consequent development of the *corpus sanum* in its most perfect state in man, the masterpiece of organic creation? If, then, as asserted as well by Darwin as his opponents, there exists a law of variable, or, as I venture to maintain, of a varying organisation, essential to organic progression, and if man has arrived at the highest stage of this progression, it is not

straining the proposition to affirm that *the operation of that law continues now, as it has ever done, at least in the sustentation of the progress it has attained.* If it ceased to operate, in this respect, as far as the laws implanted in it permit, the natural result to be anticipated would be retrograde action, and the consequent hereditary development of a deteriorated being, when the means of securing progression, i.e., selection, were disregarded.

And this is exactly what occurs in the development of hereditary struma, depending upon the causes alluded to. The manner in which the scrofulous deterioration evinces itself, although most apparent in the nutritive system, is not confined to it, nor are its ravages limited to mere defect of nutrition. Although anemia is its most constant accompaniment, lesions depending upon a want of balance in the vital orgasms are very common—hence morbid actions and degenerations of various kinds occur.

If this reasoning be admitted to hold in scrofula, as accounting for the degenerations and morbid actions observed to occur in that protean malady, it is not impossible that further light might be thrown on the *causa morborum* in some other diathetic or constitutional diseases, more especially in those ascribed to habits of body, or blood-poisoning, as gout, between which a remarkable resemblance is observable. It is not merely from the neglect of hereditary selection, but from a hundred and one other causes, many of them occult, and others obvious enough, although disregarded, that the deterioration and decay of the vital powers occur. These considerations would lead us into too wide a field did we merely attempt their enumeration at present.

As the practical scope of our remarks on an occasion of this kind is necessarily limited, let me select a very few instances occurring to my own observation which will help to elucidate our subject, commencing with the functions of the brain.

The observations of Professor Huxley in support of his view that brutes are automata, his and Goltz's vivisections of the frog, and the case of the wounded sergeant, reported by Dr. E. Mesnet, furnish us with remarkable examples of the effects produced by the removal of, and injury inflicted on, the anterior lobes of the brain. In both there was an absence of sensory impressions in certain organs, but it is clear that what was known by by-gone physiologists as organic sensibility and organic sensible contractility remained, as well as a perceptible response to certain stimuli through the organs of touch and the skin.

We must all be familiar in practice with cases bearing on this question, where the sensorial action is more or less interfered with, in which no direct injury can be traced to the anterior lobes of the brain, but in which this and other portions of the organ are abnormally acted upon, and their functions suspended or impaired by simple reflex actions

through the neurotic connexion, or sympathy, as we term it, with remote organs of the body in man and animals.

The following case illustrates this fact:—A boy between eight and ten years of age was three times under my care with confirmed catalepsy of the most obstinate character. I found him on each occasion lying totally insensible, with his limbs extended, rigid, fixed, and immovable. No stimulant called forth the slightest sensibility; the only evidence of life a feeble heart's action of about 50 beats in the minute, and an inaudible respiration of 11, which was counted with difficulty by the scarcely appreciable expansion of the chest. On each occasion the attack was due to caecal lodgment of several days' standing before attention was called to him. Fortunately there was sufficient consensual sympathy remaining between the muscles of the pharynx and those of respiration to permit of his swallowing, which process was secured at long intervals by introducing fluid well back into the pharynx, and stopping the respiration through the nose, by compressing the nostrils, when the act of deglutition was automatically effected through the organic sensibility of the structures in order to permit of inhalation. The quantity of cathartics administered to this patient before overcoming the obstruction is almost incredible. On two occasions it resisted them for five days, and on the third for seven days; but the remarkable fact in this case was the rapidity with which sensation, cerebration, and the power of motion returned after the sympathetic cause was removed, leaving no inconvenience of any kind beyond prostration and debility.

From the period of the author of "Diakosmos" to that of our contemporaries, Herbert and Maxwell, upwards of two thousand years, the attention of philosophers has been drawn to the laws of atomic or molecular structure as the basis of cosmic existence, and the seat of sensation and life. Gasendi, Lucretius, and others more near our own period, may have run riot with the extent to which this principle was carried, and enunciated such "rank materialism" as that "nature is seen to do all things of herself, without the meddling of the gods." Facts based upon the united experience of biologists and physicians, upon aberration in health and disease, on experiments the most crucial, have established the conclusion that what we term sensation and thought have their seats in the nerve tissue, spinal cord, and brain. Indeed, it seems almost a work of supererogation to dwell upon a truism now so universally admitted. I shall briefly mention a case of this, of a kind with which all my hearers are, doubtless, familiar. A patient in previous good health was suddenly attacked with general anasarca and effusion into all the serous cavities. The ventricles of the brain were the last attacked. Previously vivacious, talkative, and intelligent, remora set in; hours passed without her articulating, or she muttered incoherently; was roused to consciousness with difficulty to take her food, and at times

lay in a state of stupor; at the same time she took her food well, and all her functions were natural. Remedial agents told upon her; absorption of the fluid set in; the anasarca and effusion disappeared rapidly; her cerebration became more clear; her incoherence disappeared; the hallucinations recurred at prolonged intervals, although certain traces of imperfect cerebration show themselves at long intervals, and she still appeared, in nautical phraseology, to wear slowly, not answering at once to the helm when suddenly addressed. This defect wore away, and she became as she had been before her illness. Here, then, the sudden effusion of a small quantity of serum into the ventricle of the brain vitiated and ultimately suspended cerebration, and its removal was as immediately followed by return of the power.

A gentleman, who suffered from dyspepsia, was repeatedly attacked, at the conclusion of his dinner, with sudden insensibility, which lasted for about half an hour; from this he rallied more or less tardily, but with his perceptions obtuse—at first incoherent, afterwards wandering, but capable of being roused and of answering questions coherently. A few days usually found him restored to his former capacity, only his sense of taste as well as of hearing remaining impaired; but on one occasion the symptoms lasted much longer, and he was several weeks before being quite restored. This gentleman was a moderate eater, and moderate in his stimulants; but, on each occasion, his attack was traced to the simple fact of over-distension of the stomach by vegetable foods and fluids, taken too freely at his principal meal.

We shall not delay to inquire what evidence there is of what biologists term molecular *changes* in the *brain*, which sensory nerves are said to give rise to, and which changes are said to evolve the corresponding states of consciousness, as a fellow-feeling, in our ignorance of the exact process of cerebration, should make us wondrous kind in our criticisms. How know we that the inventor of the cerebroscope, who is fated to elucidate the mystery, may not at this moment be occupied in lisping Darwinian numbers and studying Goldsmith or Bingley in his nurse's arms? Let us accept, as the best explanation as yet offered, Professor Huxley's statement that "each sensory impression leaves behind a record in the structure of the brain which is competent, under certain conditions, to reproduce, in a fainter condition, the state of consciousness which corresponds with that sensory impression; and that it is these ideaginous molecules which are the physical basis of memory."

We may add to this statement that each repetition of the sentient impression will render more permanent, and more easily summoned, the idea, until it becomes almost, so to speak, omnipresent. Nor is this conclusion irreconcilable with the Professor's statement, if I understand him aright—that, in the ordinary laws of memory, ideas recur in a fainter condition than on the first impression.

I recollect, many years ago, being much struck by a very simple circumstance, illustrative of the intensity of such a sensory impression in rapidly evolving consciousness out of a lethargic sleep. I had been taken to see an urgent case at Kingstown, by the last train, on a severe spring night, and had to return to Dublin. Standing beside the stoker on the engine, a particle of coal got embedded in my conjunctiva, which I could not remove. After tossing on my bed for three or four hours in torture, I got up at about four o'clock, rushed to the house of a friend, an eminent oculist, at the time a Benedict. I made my way to his bed-room, found him in a lethargic sleep, as he was only two hours in bed, exhausted by hard work, superadded to literary labours extended into the short hours. I endeavoured to arouse him with a piteous detail of my sufferings, uttered at the pitch of my voice, but got no response. I shook him with some violence, again and again, but could not provoke the slightest consciousness. At last, on the eve of giving up the cruel attempt to disturb his sweet slumbers in despair, I changed my tactics, stooped down, placed my mouth close to his ear, and uttered—"I have got a spark in my eye." The word eye had not struck upon his tympanum until his consciousness was roused to an intensity that startled me. He sprang with a sudden bound from his bed, "all there." He obeyed to the letter the behest of Waller, one of Ireland's sweetest poets:—

"Don't be looking at all
For your cloak or your shawl,"

placed me on a chair in the strong morning light of the bursting dawn, seized a lancet, everted my eyelid, and removed the spicula in less time than I uttered the talismanic word which struck the cord that, on Huxley's principle, impinged upon the ideaginous molecule.

The cerebration in sleep, and in the delirium of fever as well as in other hallucinations, appears to throw some light upon these sensorial impressions, and their permanency in certain cognate conditions. The absence of the power of comparison would seem to be the defect that prevails in all. The ideaginous molecules, so to speak, would appear to thus have their full play uncontrolled by reason, and the imagination runs riot. Under these circumstances, if a number of them get excited at the same moment, they revel without restraint, exciting an incongruous crowding of ideas upon the sensorium, and producing no fixed or distinct impressions capable of being imprinted upon the memory or recalled to the recollection. These phenomena are familiar to most people from their experience of disturbed dreams and febrile mazes. On the other hand, the reverse state occasionally occurs in sleep, fever, and mania.

Let only one or a few ideaginous molecules be excited to action at a time, with the restraints of comparison and judgment removed; let this excitement continue or be repeated—the idea, dream, or hallucination,

is stamped upon the mind—it is recollected, but it is corrected in our waking by the powers of comparison and reason, and the influence of external impressions. Not so, however, in fever or mania. The correcting powers are, in these morbid conditions of the brain, suspended or interrupted, and the impressions continue unchecked during the waking hours.

The pertinacity with which some of these impressions adhere to patients, even for weeks after recovery from fever, is very remarkable. A young gentleman suffered from typhoid fever for six weeks, in the progress of which he imagined that he had come into the possession of a very large property. This was the primary false sensory impression, and occurred early in the fever. It recurred so frequently that it never for a moment seemed absent from his mind. He was perfectly reasonable upon every subject save this and the consecutive train of thought which the possession of his wealth called out. For instance, he had a magnificent stud of horses and drags, and handsome equipages, grooms, and liveried servants, a mansion in town, and a country residence. He hunted, he drove his drag, and offered the use of his horses, equipages, and money to those about him; he settled a thousand pounds upon his nursetender, offered ten thousand pounds to every member of his family, and presented his doctor with his own favourite riding horse; whilst on every other subject he was perfectly sane.

I never, in fact, witnessed a happier patient than he was whilst labouring under this hallucination. He recovered perfectly from the fever, but the hallucination remained for nearly two months after its subsidence. In this case the ideaginous molecule was so deeply impressed by the continuance of the false idea throughout the fever, unchecked by comparison, that, although the reasoning faculty was complete in every other respect, it failed to correct the hypertrophied sensorial impression. If these views hold, they will help us much in psychology, and particularly in monomaniacal hallucinations.

Inquiring how a patient in high fever, with gout in both limbs, passed the night, his answer was—"Horribly; I was in agony; the Catholic leg got on the top of the Protestant leg, and crushed it down, and lay upon it all night." I should mention that this case occurred many years ago, and the patient had been a zealous fire-eating member of the old Dublin Corporation. His healthy cerebration disturbed by the fever, and his sensations engrossed by the agony of the limbs, intensified by a sudden translation of the gout to the Protestant or right leg, in the course of the night his sympathies, unrestrained by healthy ratiocination, naturally went with the leg most pained and least movable, and he identified the aggrieved member with his politico-religious party, although this was his only hallucination, and remained steadily fixed in his mind for several days, until the fever subsided. I should say that the most

marked cases of what Aristophanes designates as Κακοδαιμονία are of the politico-religious kind.

The prevalence of a "ruling passion" is ascribable, most probably, to the preponderating and unrestrained influence of an hypertrophied ideaginous molecule; and monomania may be thus accounted for, as well as the persistent mischief perpetrated by certain children, and the extravagant conduct and language of those children come to manhood and even old age who ride their hobbies to the death. We are not wanting in such instances in our own imaginative land, and an observant philosopher might detect some such within the walls of a certain great House across the channel.

I was consulted lately about a charming boy, little over two years of age—intelligent, quick, submissive, and as obedient as a child of that age could be, save that his ruling ideaginous molecule was possessed by a legion devils of destruction, over whose influence he could exercise no control. Everything he could carry was thrown into the fire or the bath; tea-cups, bowls, jugs, basins, were upset, and their contents emptied on the table or floor. The moment he accomplished his mischief he seemed to regret it, and submitted himself to punishment, but the next moment he was on the alert for fresh "diablerie," punishment not having exercised the slightest influence in restraining him. It is to be hoped that the education and exercise of the moral faculties may gradually enable him to control his propensity, but if he remains under it, as the hobby-riders just referred to, he will turn out a remarkable man. In support of the organic descent, it should be mentioned that for three generations this family never was without a mischievous boy. The former children fortunately grew out of it.

Although it is quite true that no two creatures possessed of life, either in the animal or vegetable kingdom, are absolutely alike in every respect, yet it is equally true that structural peculiarities descend from parent to offspring, and this through successive generations. A knowledge and application of this fact has led to the propagation of varieties in both kingdoms. It is, too, a fact that evinces itself markedly in the propagation of disease, and one that, as physicians, we cannot be too watchful of, although much may be done to break the chain that fetters the irresponsible son with his father's perhaps well-earned malady. If gout prevails in a stock, abstinence and active pursuits may accomplish it; if scrofula, proper diet may do so.

Although gout is generally a disease of advanced life, it is a mistake to suppose it to be so limited. I have met with well-marked attacks of gout in childhood, and even in infancy, in families in which the gouty habit prevailed. It is purely and essentially a disease of repletion, or want of proper balance between the secretants and the excretants, whenever and wherever it appears, and although no doubt, in certain

forms and certain habits, it runs a course *coute qui coupe*, it then becomes a justifiable object to secure its speedy development in a safe place, and thus prevent (if possible) its seizing on a vital organ. These cases constitute what we should consider the exceptions. Unfortunately the profession rarely see gout unless either in its most severe and acute stages, or after gouty lesions and degenerations have been permanently established in exhausted gouty habits. Consequently they have to deal with the wolf at the door in the former case, and there is little to be done in the latter, and in such cases the axiom of our late witty *confrère*—“Treat your gout like a gentleman, or he will treat you like a black-guard”—is quite true. But if there is any fact I am satisfied of it is this, that the general application of such a principle is highly objectionable, and (if acted upon) productive of an infinity of suffering and mischief.

Gout, whether hereditary or sporadic, is acquired by the sufferer, and may be prevented in ninety-five cases out of every hundred in which it is first anticipated, and in forty out of fifty of those in whom it has appeared, without the absolute establishment of a confirmed gouty habit. On this subject I would recommend the re-perusal of the article of the late Dr. Barlow, of Bath, published in the “Dictionary of Medical Sciences,” premising that the use of the lancet and free depletion there practised would, in gout as in other inflammatory affections, be inapplicable at the present day. In hereditary gout it is even more necessary, and, I need not add, more difficult, to prevent the outbreak of the disease than in sporadic gout. In the former it can only be done by altering the predisposed gouty diathesis that prevailed *ab initio*; in the latter it is to be accomplished by preventing the occurrence of such a habit.

I trust you will excuse me if I claim to speak with a large and long experience and feeling, general as well as personal, on this subject, and permit me to take you into my confidence upon it when I say it amounts to this, that I have never met with half a dozen adult cases in my life, at home or abroad, in which I was not able to trace out the development of gout in the individual to his own mismanagement of food, habits, and exercise, and this whether the hereditary predisposition did or did not exist.

It is all very well for us to rail at our parentage, but in looking for the congeners and ancestry of gout we may safely adapt the language of Thackeray’s “Rosalba”:

“Boozy habits was my brudder;
Beef and mutton was my mudder,
Never knew of any udder.”

But the application of hereditary influence extends, in the opinion of some of our philosophers, much further than to organic perpetuation in the species of structural peculiarities. Mr. Spencer insists upon ancestral experience descending by inherited organisation, which would assist

us in accounting for that law which has hitherto so much perplexed us—the law of instinct. In this field of investigation abnormal experience or diseased action may also assist our elucidation.

A lady, twenty years of age, who never had been taught a note of music, and who had not displayed the least knowledge of poetry, was seized with mania. It assumed the markedly hysterical form; and, although she had never sang a line of music or composed a line of poetry, she improvised for days almost unceasingly the most charming rhythmical verses, uttered in the sweetest melody. Her hallucination passed into a religious ecstasy, and her instinctive faculty of song and verse was so exquisite as to touch the sensibility and soften the heart, whilst they caused astonishment in the minds of the coolest-headed persons who heard her. For my own part, I could not have believed in the possibility of such a phenomenon if I had not witnessed it.

How far was this inherited organisation? She had lost her mother, who was a good musician, when an infant; her father was a man of high cultivation and great ability.

In addressing those around me, amongst whom I detect many whose pursuits have this aim, "*Dotare vitam humanam novis inventis et copiis,*" I cannot conclude more appropriately than in the language of the father of the inductive philosophy, uttered at the conclusion of his "*Instauratio Magna.*" Bacon, after outpouring his soul in a prayer of deep feeling and solemnity, which I would strongly commend to the re-perusal and consideration of philosophers and their critics alike, adds—"Having thus concluded our prayers, turning to men, we both offer some salutary admonitions and make some just requests. First, we admonish men (as we have also prayed) that, as regards divine things, they keep their senses in their proper office. For the senses, like the sun, reveal the surface of the terrestrial globe, but close and seal up that of the celestial. Next, that, in their avoidance of this error, they may not fall into the opposite, which will certainly be the case if they consider the investigation of nature in any respect prohibited, as if by interdict. For it was not that pure and innocent knowledge of nature, by which Adam gave names to things, from their properties, that was the origin or occasion of the fall, but that ambitious and imperious desire for moral knowledge, distinguishing good from evil, with this intent, that man might revolt from God and govern himself. This was the ground and the means of temptation. With regard to the sciences which observe nature, the sacred philosopher declares, that 'it is the glory of God to conceal a thing, but the honour of kings to search out a matter'—just as if the divine nature were amused with the innocent and gentle play of children, who hide themselves that they may be found; and, from its indulgence and goodness towards mankind, had chosen the human soul as a playmate for itself in this amusement."

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